

JANUARY 1917 ~ N° 133

Monthly

A Reference for Buyers

6352
+ 94

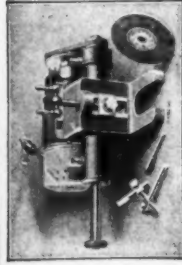
HITCHCOCK'S
**MACHINE
TOOL LIST**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

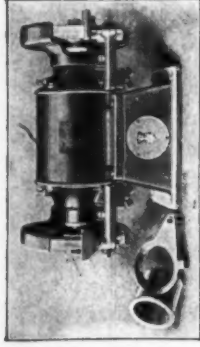
Published by
A·H·HITCHCOCK
1220-1235 Caxton Building
Chicago

HISEY

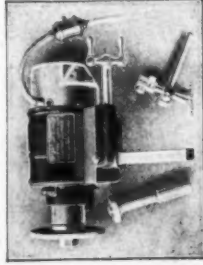
Electric Drills and Grinders



Combination Internal and External Grinder
Two Sizes: $\frac{1}{4}$ and $\frac{1}{2}$ Horse Power



Ball Bearing Bench Grinder
Also Made with Pedestal for Floor Use
Five Sizes: $\frac{1}{2}$ to 5 Horse Power



Tool Post Grinder
Ten Styles and Sizes

Write for Catalogue H

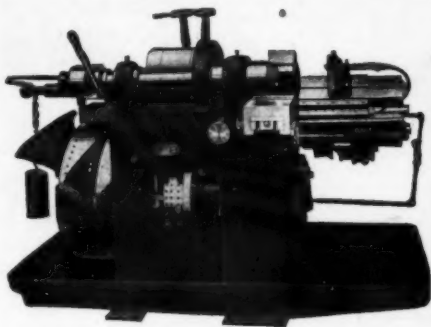
The
Hisey-Wolf Machine Co.

Cincinnati, Ohio

New York Office, 50 Church St.



"Hisey" Hand Drill
Eight Styles and Speeds



Where Accuracy is Supreme

On heavy screw machine work where accuracy is a vital feature the Gridley Automatic Turret Lathe proves its real worth.

Its construction permits higher cutting speeds, coarser feeds and heavier cuts to be made without sacrificing precision.

Its design is unique in that the turret is parallel to but not concentric with the spindle, thus permitting unusually heavy and solid bearing construction. Moreover, one tool can be mounted behind another on the slide and tools are held rigid, close up to the work.

It is this rigid construction and correct design of the Gridley that result in clean cut, accurate production of any work up to 5" in diameter.

*Attractive deliveries on all sizes of
Gridley Automatic Turret Lathes.*

Send samples or blue prints.

THE NATIONAL-ACME CO.

GENERAL OFFICES
CLEVELAND

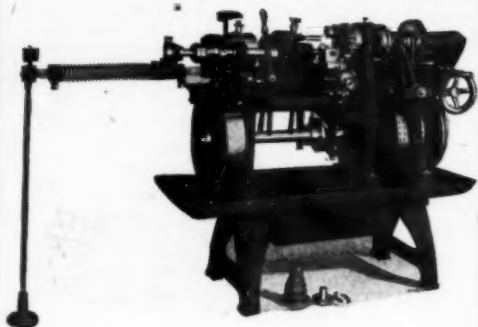
Windsor, Vermont

CANADIAN SCREW PLANT
MONTREAL

Branch Offices

NEW YORK BOSTON CHICAGO DETROIT ATLANTA SAN FRANCISCO
WAREHOUSES—NEW YORK, CHICAGO With FOREIGN REPRESENTATIVES

Makers of Gridley Single and Multiple Spindle Automatics at Windsor, Vt., and Acme Automatics, Threading Dies and Screw Machine Products at Cleveland, Ohio



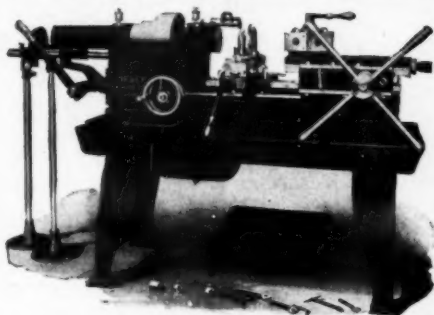
No. 1 $\frac{3}{4}$ in. Capacity

No. 2 $1\frac{1}{4}$ in. Capacity

No. 4 2 in. Capacity

For Sale By The
John Macnab Machinery Company
90 West St., New York City

The One-Inch Pierce
Capacity 1 1-16 x 8 Inches
The Widest Range Screw Machine



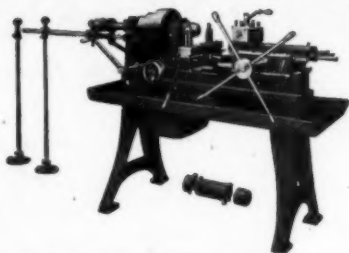
All White Metal Bearings

There is strength in this machine, and power. The countershaft pulls full 15 h. p., while it is common for machines of this type to slip under a pull of 5 to 10 h. p. That makes for production and economy, for which the tool was especially designed. It has the accuracy required for the most exacting working requirements, combined with a simplicity of adjustment and operation that makes it satisfactory alike to operative and boss. We ask you to get acquainted with it. No expense, no obligation ; just write for information.

And Please Do It Now

Pierce Machine Tool Company
617 W. Jackson Blvd., Chicago, Ill.

Turret Lathes and Screw Machines



built and designed to give maximum permanent accuracy and efficiency. Reasonably priced.

Himoff Machine Co., Inc.

134 Mott Street,

New York, U. S. A.

Small Lathe for Quantity Work



**New Dalton 6-in.
Actual Swing 7 $\frac{1}{4}$ -in.**

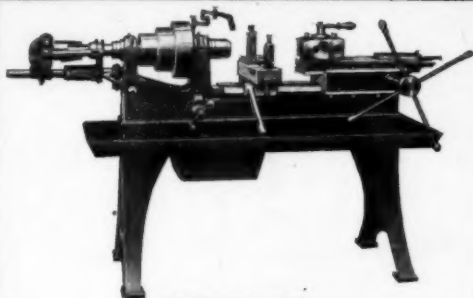
Having established enviable records in manufacturing small parts in quantities, it commends itself to plants of all sizes in these modern days of rigid shop economy.

Has the accuracy for the finest tool-room work, and the power to do work usually taken to a lathe three times its size.

Furnished with cabinet leg as shown in cut, on standard legs, or as a bench lathe. Electric drive, power driven or foot power.

Write for Bulletin B-602

DALTON MACHINE CO., Inc., 1911 Park Av.
NEW YORK, U. S. A.



MODEL "D"

Turret Lathes and Screw Machines

Now Ready for Delivery

**Designed for Rapid Manufacturing of
Parts Requiring Several Operations**

MADE IN FOUR SIZES:

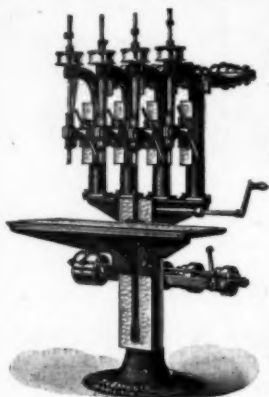
- No. 2 { $1\frac{1}{16}$ " Wire Feed Capacity, Plain Head
 { $1\frac{1}{32}$ " Hole Through Spindle.
- No. 3 { $1\frac{5}{16}$ " Wire Feed Capacity, Plain Head
 { $1\frac{1}{32}$ " Hole Through Spindle.
- No. 4 { $1\frac{5}{8}$ " Wire Feed Capacity, Geared Head
 { $2\frac{1}{32}$ " Hole Through Spindle.
- No. 5 { $1\frac{7}{8}$ " Wire Feed Capacity, Geared Head
 { $2\frac{9}{32}$ " Hole Through Spindle.

**With or Without Power Feed to Turret Slide.
Mechanically Perfect and Fully Guaranteed.**

Manufactured By

Smurr & Kamen Company

313 N. Whipple St., Chicago, Ill.



The Well Known
H. G. Barr Line
 of
Sensitive Drills

with one to six
 spindles.

*Send for catalog
 if interested*

Francis Reed Co.
 43 Hammond St.
 Worcester, Mass.

Rearwin Die Filing Machines

*Increases the Output
 Decreases the Cost*

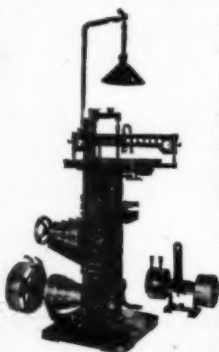
Does both large and small work. Any standard file 4" to 12" in length can be used. Stroke adjusted from 1" to 7". File releases on up-stroke. Shaft or motor drive gives rapid production and a uniform degree of clearance in your dies or other work where straight filing is required. Hack saws can be used for making templates.

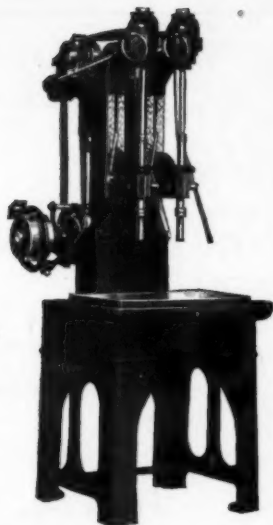
Adjustable Speed Stroke & Table

*Descriptive circulars and
 prices sent on request.*

W. D. Rearwin

341 Mill Ave., Grand Rapids, Mich.





**With
One
to
Eight
Spindles**

**For
3/4-in.
Drills
and
Smaller**

Drilling Machines that Have Proved Up

It is not an accident that many of the largest drilling plants are standardizing on Henry & Wright's, with gearless power transmission and frictionless bearings—one plant alone having over 2,300 H. & W. drilling spindles. It is because they have proved up under the exhaustive tests demanded by scientific management. Our 252 Varieties enable you to select what you need.

Full details and our Speed and Feed Chart free

The Henry & Wright Mfg. Co.
760 Windsor St., Hartford, Conn.



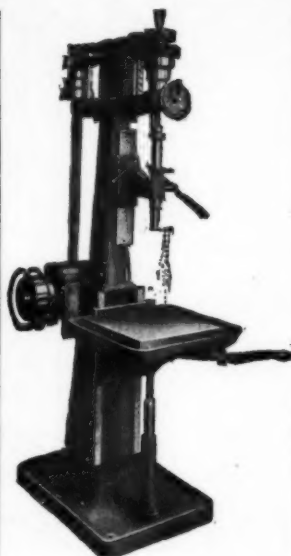
FEATURES

Quick
Change Speed
Change in 2 seconds

Most
Efficient Drive
No belt troubles

Safety First
All parts protected

Heaviest
Drill Made
Yet very sensitive
All Ball Bearings



An Hour A Day Saved

on each drill, foots up to a handsome total in a year.

The Sipp Quick-Change-Speed Drill

is a direct time-saver. The right speed for each job is instantly and easily set by simply throwing over a lever on a dial, hence operatives *willingly* change speed when desirable.

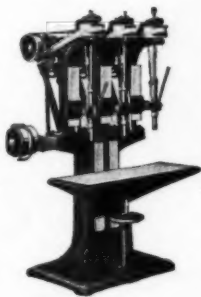
Write for details

The Sipp Machine Company

Keen St., Paterson, N. J.

LELAND - GIFFORD

Ball Bearing Drilling Machines



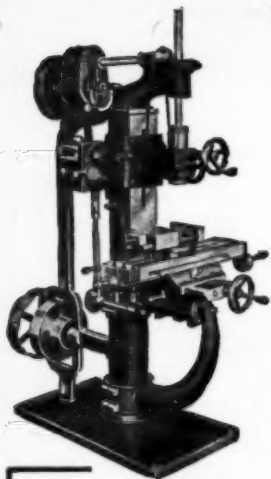
Will increase your production

Send for catalogue

Leland-Gifford Co.

Worcester, Mass., U. S. A.





The Knight
Mills, Bores
and Drills at
Any Angle

To Save 20 to 50% of Time

on difficult machining is worth a good, strong effort. Installing a Knight Milling and Drilling Machine puts it at your daily command. It makes all kinds of hard machining comparatively easy, and it certainly has no equal on dies, jigs and metal patterns. Your choice of three sizes.

Our Light Duplex Miller

is especially adapted to the rapid and accurate milling of such work as frames of typewriters, adding machines, cash registers, etc., where lugs occur in pairs and are to be finished on opposite sides of the casting.

They are both modern time-savers and cost-reducers. Send for circulars, and kindly give us a description of your work.

W. B. Knight Machinery Co.
St. Louis, Mo.

Radial Flexibility—*plus* The Speed of the Sensitive



The T. & F. Rapid 3-Foot Radial

has such convenience and adaptability that manufacturers have doubled and trebled their outputs with it. It has no equal for drilling holes up to $\frac{3}{4}$ -in. in large, unwieldy pieces and castings.

While thoroly rigid in construction, it is the lightest machine of its type. Easy to handle and easy to adjust, and has all the desirable features of our standard line. It pays to get rid of your out-of-date machines and replace them with this modern cost-reducer.

Our cost comparisons are interesting and convincing. Post yourself and see what they would mean to you during the new year.

The Taylor & Fenn Company
Hartford, Conn.



The Fenn No. 1
Friction Tapping Machine
"It Saves the Taps"

Driven and reversed by friction, it is sensitive to the touch and has but little spindle strain. Result, reduction of broken taps to a minimum.

The friction rolls are adjustable, with speed changes from 225 to 600 r. p. m.

A simple, safe, rapid-production machine for tapping up to 3-16-in. Made also in bench type.

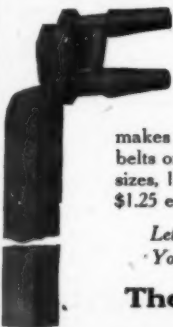
Delighted to have your inquiry. But when?—now?

Fenn Manufacturing Company
Hartford, Conn.

Telegraph Code "Fenn."

W. L. Fenn W. A. Fenn
 (Formerly of the Taylor & Fenn Co.)

Make Accidents Impossible
In Putting Belts on Moving Pulleys



First aid to the injured is important *after* the accident, but *prevention* is immensely better and cheaper than doctoring. Our

"Safety First" Belt Stick

makes accidents *impossible* in putting belts on moving pulleys. Made in two sizes, 1 to 4" and 4 to 6", at one price, \$1.25 each or \$12 a dozen.

Let us send you a few on approval

You'll never let them come back

The Ready Tool Co.
Bridgeport, Conn.

Radbore Heads

**Maximum
Accuracy**



**Minimum
Cost**

For All Square and Rectangular Hole Work

Rejections are expensive, especially so now that the prices of all materials are far above normal.

Radbore Heads save this expense. Their use obviates all rejections caused by the tearing action obtained through other methods.

Radbore Heads remove the stock in the same manner as an ordinary twist drill, leaving the material, whether metal, wood, or stone, its full strength.

Interesting Booklet On Request!

LAWSON & CO. INC.

90 West St.

New York City



A Turn of the Wheel— Any Speed You Want

That's the Reliance way of making speed changing easy and quick. It offers the simplest way of keeping each machine at a top-notch production rate on all kinds and sizes of work.

Reliance ^{Adjustable Speed} Motors

run at any speed over wide ranges. There are no fixed steps and no loss of current as the speed is varied.

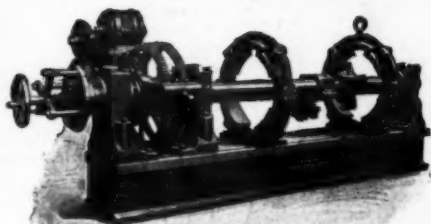
The motors deliver their full capacity and will carry heavy overloads at all speeds. No electric controller is used.

For details write for Folder 10L.

(We also build constant speed motors.)

Reliance Electric & Engineering Co.
1050 Ivanhoe Road Cleveland, Ohio

Why A \$4000 Machine?



When a Pedrick Tube Boring and Facing Machine will do long, straight boring just as accurately.

Buy this machine as a matter of convenience.

It will release your more valuable, more universal machinery for other important work, and yet your boring will be done just as well. As a result you have

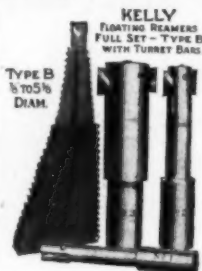
**Economy
Increased production
Deliveries on time**

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

We also build Portable Cylinder Boring Bars, Pipe Benders, Crank Pin Turners, Milling Machines, etc.

Kelly PRODUCTION Tools



The outfit shown in cut, with three turret bars and 36 type B reamers, gives any diameter in ten thousandths from 15-16ths to 5 7/8 inches. Each reamer has an adjustment of 1/4-inch.

Kelly Boring and Reaming Tools are made for any diameter from 9-16ths to 12 inches and larger.

Write for the Catalog

THE KELLY REAMER CO.
CLEVELAND, OHIO, U. S. A.

C. W. Burton, Griffiths & Co., London, English Agents.
Burton Fils, Paris, French Agents. 40 Domestic Agencies.

Broken Taps— They Cost You Money

Which You Might Easily Save With



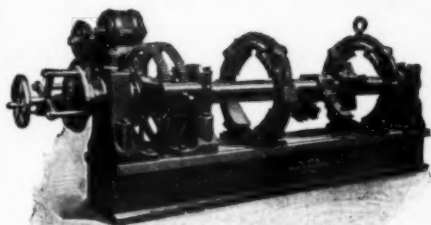
The Walton Tap Extractor

It costs very little, and in removing one broken tap often saves what you pay for it. The steel fingers slip down along the flutes, the holder and sleeve clamp them and the tap together, and it turns out with tap wrench as easily as if it were whole. If time is worth anything in your shop, the Walton Extractor is practically indispensable. Have one ready for your next broken tap, and try it at our risk. You have 60 days in which to test it.

Let us send a folder; it will interest you

THE WALTON CO., Hartford, Conn.

Why A \$4000 Machine?



When a Pedrick Tube Boring and Facing Machine will do long, straight boring just as accurately.

Buy this machine as a matter of convenience.

It will release your more valuable, more universal machinery for other important work, and yet your boring will be done just as well. As a result you have

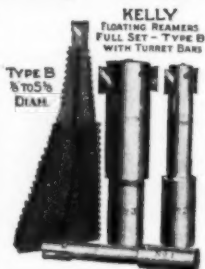
**Economy
Increased production
Deliveries on time**

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Let us send a folder; it will interest you

THE WALTON CO., Hartford, Conn.

SECOND-HAND MACHINERY

FOR SALE BY

Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.

LATHES.

48"x22" Pond, c. r. | 14"x 6' Lodge & Shipley, hol. spdl.
18"x10" Hamilton, hollow spindle. | 14"x 5' Fitchburg, r. f. r.
17"x 8' Johnson, c. r. | 11"x 5' Reed, r. f. r.

MISCELLANEOUS.

Bolt cutter, 1½" Wells Bros.
Boring mills, turret head vertical, 36" Brown & Sharpe, (2).
Broaching machine, No. 2 Lapointe.
Chucking lathes, three 24" Davis.
Chucking lathes, automatic, five Potter & Johnson, spindle cap. 4½" and 2½".
Cold cutting-off saws, capacities 4", 5" and 6" round.
Gear cutters, 36" Whiton and 36" Gould.
Milling machines, No. 2 Pratt & Whitney, plain table 20"x7"; No. 3 Garvin hand plain millers.
Pipe cutting and threading machines, 4" and 6".
Planers, 24"x24"x6" New Haven, with 1 hd.; 30"x30"x6" Smith, with 1 head.
Radial drill, 20" Harrington.
Slab miller, 17"x8" Beaman & Smith, with two horizontal spindles.
Stamping and punching presses, a large number of the open back inclinable, straight side and arch types.
Turret lathes, Jones & Lamson, 3x36.

FOR SALE BY

The Osborne & Sexton Machinery Co.,

Columbus, Ohio.

LATHES AND TURRET LATHES.

13-15-16 and 18 O. & S., h.s., c.r., new.
13"x 5' LeBlond, hol. spdl. comp. r.
14"x 6' Bradford, power feed turret.
14"x 6' Blaisdell, taper, (2).
15"x 6' LeBlond, hol. spdl. comp. r.
16"x 6' Greaves & K., h.s., c. r., (2).
16"x 8' Bradford, hol. spdl. comp. r.
20"x 8' Hamilton, h.s., d.b.g., new (8).
20"x10" Putnam, overhauled.
21"x14" Fifeild, comp. rest.
22"x 8' Schumacher & B., h. s., c. r.

SHAPERS AND PLANERS.

15" Hendey tool and die shaper.
15" American, crank.
16" Steptoe crank.
16" Springfield, back geared crank.
20" Hamiton, back geared crank.

MISCELLANEOUS.

Boring mill, 6' Niles double head.
Broacher, 6½" stroke Waterbury.
Centering machine, 6" P. & W.
Cut-off machine, 3" Davis.
Drills, flexible shaft (2).
Drills, 14" Henry & W. hi-spd., (2).
Drills, hi-speed, 23-32"—32 tapered.
Drills, sensitive, 1, 2, 3 and 4 spindle.
Drill, 26" sliding hd. Sibley & Ware.
Drill, 28" sliding head Aurora.
Drill, turret, 6-hole Quint.
Drill, 7-spindle, adj. centers.
Gas engines, 4 to 150 h. p.
Gear cutters, B. & S. No. 13, (2).
Grinder, tool, Gleason.
Grinder, surface, 24x12.
Grinder, 10"x20" Landis universal.
Grinder, 12"x32" Landis plain.

24"x16" Dietz, 5" h. s., c. r., taper.
15"x 6' Fox universal lathe.
16"x 6' back geared turret.
18"x 6' Mueller, turret on shears.
2"x24" Jones & Lamson, (2).
3"x36" J. & L., cross slide head.
24" Gisholt, 4" hollow spindle.
Warner & Swasey No. 6.
Warner & Swasey No. 2, hol. hex.
1" Garvin hand screw machine.
20" Ohio, new.
22" Walcott power down feed.
20"x20"x 4' Industrial.
30"x30"x 8' Bement, 1 head.
30"x30"x12" Pond, 1 head.
Hammer, power, 100 lb. upright.
Hammer, drop, 750 lb. Toledo.
Lathe, 24" Gisholt, 4" hol. spdl.
Miller, 24x7x19 Cincinnati.
Miller, No. 7 Becker.
Miller, Gooley & Edlund, 38" fd.
Motors, 2 to 25 h. p., 3 phase, 220 v.
Pipe machines, 2", (2).
Press, 7,000 lb. Waterbury, 6½" stroke.
Press, 102" Ohl, 24000 lbs.
Riveter, ¼" Shuster, 20" throat.
Rolling mill, 22"x13" Toledo, 16000 lb.
Shear, squaring, 36" gap, 15" cap.
Straightening rolls, 30".
Tapper, vertical, Garvin No. 1.
Threading mche., Webster & Perks.
Variable speed transmission, Reeves.

SECOND-HAND MACHINERY

FOR SALE BY

Neidow & Payson Co.,

Automatics, 1" to 2".
Boring and turning mills, 41" to 100".
Borer, 2-spindle cylinder.
Cold saw, 36" blade.
Drills, multiple spdl. and sensitive.
Gear hobber, 18" Grant-Lees.
Gear cutters, G. & E. and B. & S.
Grinder, 10"x36" Landis.
Hammers, steam, 600 to 3000 lbs.
We can ship heavy duty Lathes, 26" to 42" swing, any length, in 30 days.

9 So. Clinton St., Chicago, Ill.

Hammer, board, 1200 lb. B. & S.
Lathes, 9" to 90" swing.
Lathes, 2" and 3" J. & L.
Miller, No. 3 Brainard plain.
Miller, P. & W., spline.
Miller, 72"x48"x10", slab.
Planers, 26" to 72" wide.
Press, screw, pwr., No. 2 Amer. Can.
Press, 200 ton Niles car wheel.

FOR SALE BY

Wayne Machinery Co., Taylor St. & L. E. R. R., Fort Wayne, Ind.

Bolt cutters, 1" & 1" Acme.
Bolt cutter, 1" National.
Brake, 8" J. M. Robinson.
Drill, 12" Barnes, geared.
Drill, 14" Champion, geared.
Drill, 23" Springfield, b. g., p. f.
Drill, 22" Barnes, p. f., b. g.
Drill, 30" Snyder, p. f., b. g.
Gear cutter, Walcott.
Grinder, No. 1 Woodward & Rogers, surface.
Lathe, 9x45" Rockford engine.

Lathe, 15"x54" American No. 1, brass.
Planer, 12"x12"x24" Wilkenson Co.
Planer, 16"x16"x3" Whitcomb.
Planer, 24x24"x6" Smith Silk Co.
Press, plain, No. 32 Toledo.
Riveter, No. 530 Prouty.
Screw machine, 16" P. & W., g. f. h.
Shaper, 16" Hendey.
Tire welder, No. 4 L. & A.
Turret lathe, 10" Warner & Swasey.
Welding machine, No. 6-A Toledo electric butt welder.

New tools for any requirement.

FOR SALE BY

McCoy-Brandt Machinery Company

Office and Warehouse 216-218 Penn Ave., Pittsburgh, Pa.

ELECTRIC TRAVELING CRANES.

1 ton, 47'0" span, 3 motor, 110 v., d. c.
1 ton, 47'0" span, 3 motor, 110 v., d. c.
1 1/2 ton, 47'0" span, 3 motor, 110 v., d. c.
1 ton, 38'10" span, 1 motor, 220 v., d. c.
1 1/2 ton, 23'5" span, 3 motor, 220 v., d. c.
5 ton, 75'0" span, 3 motor, 500 v., d. c.

10 ton, 38'0" span, 3 motor, 500 v., d. c.
5 ton, 38'0" span, 3 motor, 500 v., d. c.
1 1/2 to 7 1/2 ton, hand, 22' span (15).
20 ton, 54'10" span, girders only.

List continually changing

We buy cranes of every description.

CRANE CONTROLLERS.

5 h. p. Morgan, 500 v., d. c., (2).

3 1/2 h. p. Morgan, 500 v., d. c.

BULLDOZERS.

No. 5 Williams-White, 20" stroke.
No. 4 Williams-White, 18" stroke.

No. 12 Ajax, 30", 16" and 9" stroke.
Dbl. end, 18" stroke, cross hd., 45x12"

LATHES.

6"x10" American, c. r.
0"x15" New Haven, p. r.
4"x14" L. & S., geared head, c. r.

20"x8" Schumacher, c. r.
18"x6" L. & D. c. r., t. a.
18"x8" L. & S., geared hd., c. r., t. a.

MOTORS.

0 h. p. G. E., 3-60-220-900 rev.
00 h. p. Westg., 250 v., d. c., 680 rev.
0 h. p. Westg., 125 v., d. c., 300 rev.

10 h. p. Westg., 300 v., d. c., 1200 rev.
5 h. p. Lundell, 110 v., d. c., 1465 rev.
3 h. p. C.-W., 110 v., d. c., 1465 rev.

PLANERS.

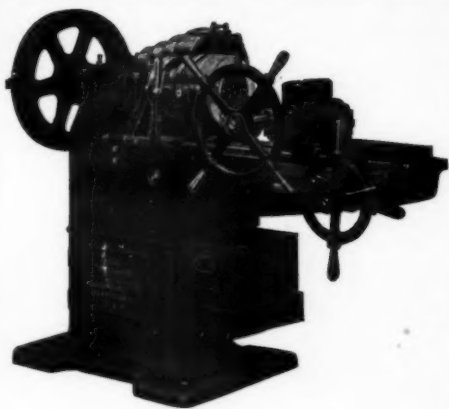
2"x72"x19" Sellers, 4 heads.
0"x60"x24" Cincinnati, 4 heads.

52" (widened to 74")x24", 1 head.
24"x24"x4" Pond, single head.

MISCELLANEOUS.

boiler, 100 h. p. Erie Economic.
bolt cutter, 1 1/2" Morgan, motor drive.
boring mill, 8" Bement 2 hds., m. d.
compressor, belted 9x9" Hall 88 cu. ft.

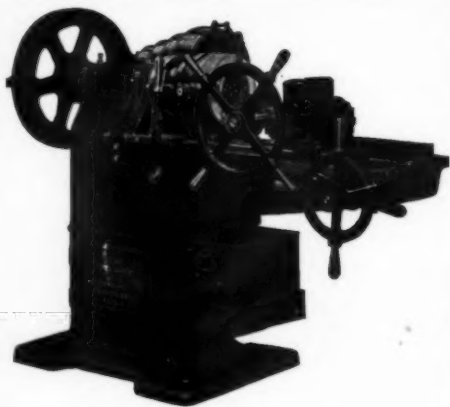
Drill press, 36" New Haven, sl. hd.
Milling mche., No. 9 Kempsmith, pl.
Punch & shear (dbl.) cap. 3 1/2" thru 2".
Rolls, straightening, 56" cap. 1" plate.
Good equipment—Quick shipments.



Reliance Bolt Cutters

Built in sizes $\frac{3}{4}$ inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

The Foote-Burt Co., Makers
Cleveland, Ohio



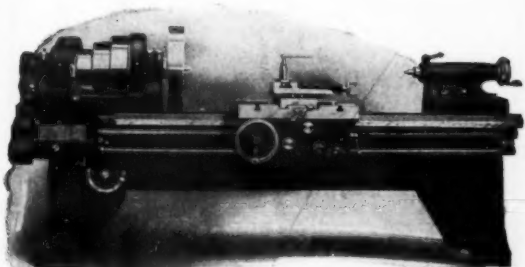
Reliance Bolt Cutters

Built in sizes $\frac{3}{4}$ inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

The Foote-Burt Co., Makers
Cleveland, Ohio

WALCOTT LATHES

Made in 14, 16, 18, 20, 26 and 28" sizes



For
Tool-Room and
Factory

Walcott Lathe Co.
Jackson, Michigan

BARRELS

Of These

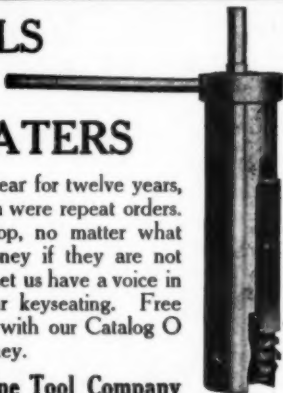
KEYSEATERS

were sold each year for twelve years, and many of them were repeat orders. Any machine shop, no matter what kind, is losing money if they are not using our tools. Let us have a voice in the matter of your keyseating. Free conference along with our Catalog O will save you money.

National Machine Tool Company

2268 Spring Grove Ave.,

Cincinnati, Ohio



Saving Time to Increase Profits

is a short cut that every factory manager can accomplish. Save time on the *details*. Instead of fussing through a large heap of solid mandrels, for instance, keep *handy a handy set of Nicholson Mandrels*.

Because they are *instantly* adaptable to *any* sized square or round hole between $\frac{1}{2}$ " and 7" they enormously speed up production on all kinds of lathe, miller and grinder work.

NICHOLSON
Expanding Mandrel

Your request will bring—free, an authoritative treatise that will show you the practical way to save time.

W. H. Nicholson & Co.
117 Oregon Street
WILKES-BARRE, PA.

Cast Iron Pulleys

Our

Specialty

In any size up to 12 feet

Solid-Split-Tight and Loose-Flanged, etc.

**Also, Cone and Friction Clutch
Pulleys for Lathe Countershafts**



Are in position to furnish

Hobbed Spur Gears

Up to 30" Diameter—3 D. P.

Ask for prices

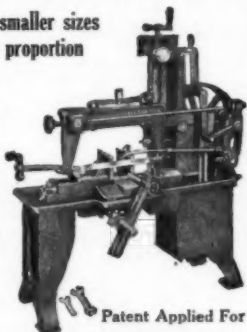
The C. A. Lawton Company
De Pere, Wisconsin

Only 10 Minutes to Cut 6-in. Steel

**The Marvel No. 4 cuts smaller sizes
of cold rolled steel in proportion**

Cuts on the draw stroke and lifts free of the cut on the return. A graduated free wheel gives any desired pressure on the saw blade.

Machine stops automatically when piece is cut off, and can also be set to stop at any desired depth in the cut. It embodies speed, accuracy and expert workmanship. We also make other hack saws, punches and shears.



Write for Circulars

Patent Applied For

**Armstrong-Blum Mfg. Co., 341 N. Francisco Ave.
CHICAGO, ILL.**

Soon Repays Its Own Cost

**Our Abrasive Metal Cutter Saves Much
Costly Material in Tool Room and Shop**

NO MATTER whether it's high speed or other hardened steel, taps, drills, reamers, tees, channels, brass or steel tubing, or a combination of metal and wood, this machine goes thru with a thin, clean cut. It saves valuable material, saves grinding, saves time, and doesn't draw the temper. It pays its own way.

8" Size \$17.50, with C. S.
Splendid for tool room. Cuts high-speed steel up to $\frac{1}{2}$ " square.

12" Size \$50, with C. S.
Cuts up to $\frac{3}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

**Write us or ask your dealer
PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.**



For Your Modern Plant



The Racine High Speed Metal Cutting Machines will reduce your costs and increase your production considerably. They are equipped with an automatic lifting device on return stroke, which is built on correct mechanical principles, and then the saw operates in a rigid iron guide, insuring positive straight line motion.

We carry a large stock of

The Famous Racine H-S Tungsten Blades

to protect the users of the Racine High Speed Metal Cutting Machine.

Yes, we'll send a Racine on a trial basis—write for full particulars.

Racine Tool & Machine Co.

1500 Junction Ave. S.,

Racine, Wis.

Manufacturers—

If you are up against it for a certain machine to do a certain piece of work, **let me design this machine for you.** If you are not sure every machine in your plant is of the correct design to give you quality and maximum production, **let us get together.**

Production and quality bring dividends.

Production and quality is what you get when I design your machinery or tools.

Designing, Improving, Drafting, Blue-printing, Manufacturing, everything from the conception of the idea to the completed machine. Write for further details.

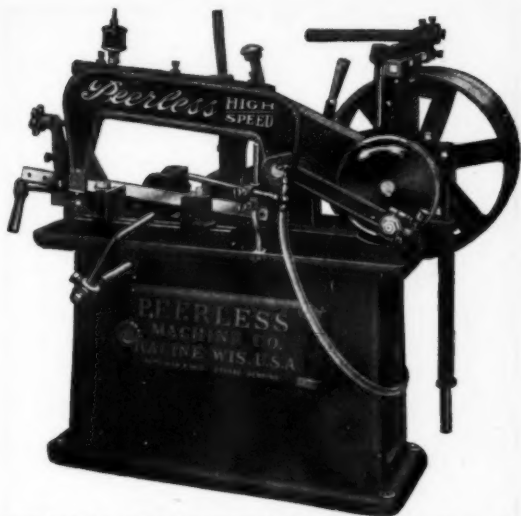
R. G. Clyne, M. E.

Columbia Bldg.,

St. Louis, Mo.

Second-Hand Wood-Working Machinery

For a large list of used wood-working machinery, consult the **Wood-Working Machinery List**, a publication similar to this but devoted to the advertising of saw-mill and wood-working machines. A copy may be had on application to the publisher, **A. H. Hitchcock, 1220-1235 Caxton Building, Chicago, Ill.**



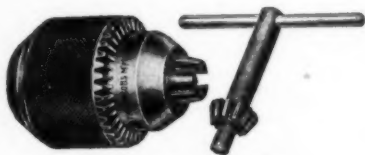
PERSONAL RECOMMENDATIONS, Previous Records and World Wide Reputations are worthless when comparative tests are made on the **PEERLESS HIGH SPEED.**

This statement we can well substantiate by mentioning that repeated orders are continually coming in for the **Peerless** in lots from one up to forty-two, and from such concerns that already have several hundred machines. Of course these other tools were selected previous to the appearance of the **Peerless.**

It is impossible for us to describe on paper these wonderful improvements, and therefore, would like to ship one on thirty days' approval, to be tested out against any other make regardless of the above mentioned facts. If you can then part with it you are under no obligations whatsoever to purchase. We will also stand the freight charges both ways in case it is returned.

Peerless Machine Company
1609 Racine Street, RACINE, WISCONSIN

The Jacobs Improved Drill Chuck



Patented Sept. 16, 1902

Manufactured by

The Jacobs Manufacturing Co.
Hartford, Conn., U. S. A.



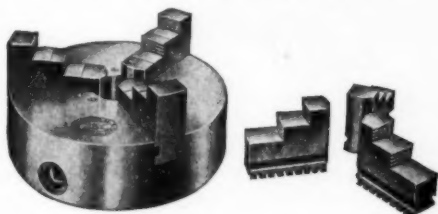
We manufacture a great variety of
Lathe Chucks, Drill Chucks, Centering Chucks
Also
Portable Jaws for Lathe face plates and Machine tables.

Let us send you our Catalog

The Cushman Chuck Co.
Established 1862 **Hartford, Conn.**

Union All Steel Geared Scroll Chucks

Meet the Demand for an Especially Strong Universal Chuck



For modern turret machinery, or any of the modern "heavy duty" machines, something stronger than the ordinary iron body chuck is demanded. The Union All Steel Scroll Chucks will stand any strains. All parts are of the best material and well designed.

Other styles of chucks with steel body are the Four Jawed Independent and the Scroll Combination Chucks.

Write us for information

Union Manufacturing Co.

New York Office,
26 Cortlandt St.

New Britain, Conn.

Makers of a Complete Line of Chucks



About Chucks—

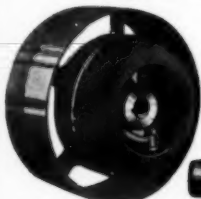
All chucks have to meet emergencies during their lives. Those that deliver the goods are bought again.

Those who want the facts will be interested in the performance of Sweetland Chucks. *Shall we tell you about them?*

The Hoggson & Pettis Mfg. Co.
New Haven, Conn., U. S. A.

Edgemont Friction Countershaft Clutch Pulleys

They pull all that the belt will



Enclosed Type, Plain Oiling



For years we have been furnishing this Clutch Pulley to practically all the large machine tool builders of the country.

Could there be higher recommendation?

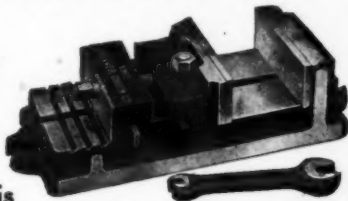
Write for description and names of prominent users

The Edgemont Machine Co.
Dayton, Ohio

How The Trial Order Works

In 1909 a big New England machine manufacturing company ordered for trial

Four
Skinner
Drill
Press
Vises
Like This



In 1912 they ordered 4 more

In 1913, 11 more

In 1914, 12 more

In 1915, 9 more

In 1916, 20 more

There is only one reason why this concern, and everyone who tries the Skinner drill press vise, wants one wherever it can be used to advantage—because the vise makes good in the largest and best sense of that term. Its portability and all around convenience, its ability to hold round, straight or tapered work and to be used at right angles, its careful, mechanical construction, and its quick and easy adjustment—these features combine to make it practically indispensable in every shop where time is money, and where the best equipment is recognized as the most profitable. We make it in five sizes.

Are You Familiar with Its Merits?

If not, Let Us Make You So

The Skinner Chuck Co.

San Francisco Office:
Rialto Building.

London Office:
149 Queen Victoria St.

Factory and Main Office:
New Britain, Conn.

New York Office:
94 Reade Street

ELECTRIC EUCLID HOISTS

Many Repeat Orders

"Imitation is the sincerest form of flattery" and a repeat order is the most sincere compliment. The fact that Euclid Hoists "deliver the goods" under all conditions, combined with their ability to serve in many capacities, has resulted in numerous repeat orders from some of the largest plants in the country.

The Euclid is a good hoist to know about. Write for our catalogue.

The Euclid Crane & Hoist Co.
Dept. C EUCLID, OHIO, U. S. A.

The Lifting In The Average Shop Is from 300 to 1000 lbs.



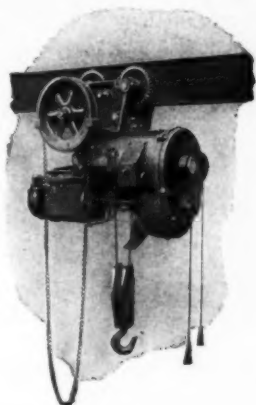
The maximum lifting power of the Canton Portable Floor Crane and Hoist ranges from 3,000 to 8,000 lbs., according to size. But we call it

"The Handiest Tool In the Shop"

because it is equally handy for all weights, which usually range from 300 to 1,000 lbs. It is an all-around time saver for any shop where there is anything to lift or transport that is too heavy for one man to handle quickly. It is as important to save the time of one man many times as of many men once.

It is worth a trial. Write to—

CANTON FOUNDRY & MCHE. CO., Canton, O.

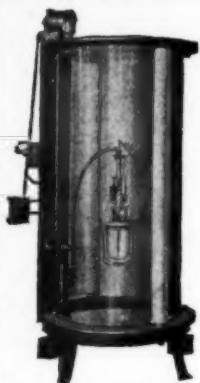


***A type "U" Hoist in your plant
will replace from 10 to 15
laborers—and it will pay for
itself in less than 90 days.***

***Built in sizes from $\frac{1}{2}$ Ton to
6 Ton capacity.***

We'll be glad to mail you Bulletin 301-BH and prices.

PAWLING & HARNISCHFEGER CO.
MILWAUKEE WISCONSIN



Electric Blue Printing Machines

Shipped on 30 days' trial

Buckeye Engine Co., Salem, Ohio

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of advertisers herein, won't you kindly remember to say somewhere in your communication that the inquiry comes from Hitchcock's Machine Tool List? Advertisers are human; they like to know that the medium in which they spend their money is received and consulted by machinery users. Not being mind readers, they can only know this when you tell them, and if you neglect to tell them, the Tool List is deprived of credit for the service it has rendered.



1917

We
Wish You
A Truly Happy
New Year

JOHNSON BRONZE COMPANY

*Formerly The American Car and
Ship Hardware Manufacturing Co.*

NEW CASTLE, PA.

Don't forget, when
completing your list of
good resolutions, that
our experience as bush-
ing specialists and our
large new plant are both
valuable to you.

*Let us quote on your
1917 requirements.
Address Dept. H.*



Blueprints

The Wickes

Continuous Electric.
Sells at **half** the
price. Uses **half**
the **current**
of others.
Perfect prints
up to 48" in
width and of
unlimited
length.

Wickes Bros., Water St.,
Saginaw, Mich.

Save Space and Time Handling Pipe and Bar Stock



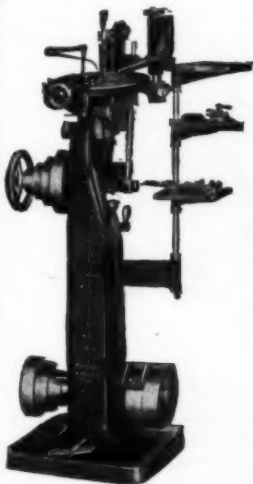
"The Handiest Racks"

store shafting, pipes, bars—any-
thing long and slim—in one-
fourth the space, while enabling
you to handle them with less
risk, expense and cost. They
begin paying the minute you
stand them up and use them, and
they keep on earning dividends
in usable space, in time and in
convenience every day. And
they will stay on the job, without
a penny of expense beyond their
small first cost as long as you do.

*You want to know what
they cost and all about
them? Let us tell you the
precious secret.*

Wm. S. Yohe Supply Co.
232 Second St., S. E., Canton, Ohio

Cochrane-Bly Machines Insure Accurate, Low-Cost Filing



No. 2 Filing Machine

Several Government Arsenals use these machines, and they are considered indispensable in the hundreds of factories, tool rooms and machine shops in which they have been installed.

Accurate filing by hand is slow and difficult, therefore expensive and sometimes uncertain.

With Cochrane-Bly Filing Machines it is accurate, rapid and easy—with results certain and the cost at bed rock.

Built in two sizes, for filing dies, punches, jigs, metal patterns, small tools and tool-room work generally.

Used in many a plant with great economy where a finish is required on duplicate parts too delicate to be otherwise machined.



Bench Filing Machine

May we not post you on this big economiser?

Cochrane-Bly Company

Rochester, N. Y., U. S. A.

**Also Cold Saws and Automatic Cold Saw Sharpeners
Universal Shapers for Die and Tool Work**

VUL-COT Fibre gears and pinions are noiseless. They retain correct tooth contours. They are practically self-lubricating. Vul-Cot Fibre is a standardized electrical insulator.

AMERICAN VULCANIZED FIBRE CO.
560-570 Equitable Building, Wilmington, Delaware

Complete stock for immediate shipment at Chicago,

Boston, New York, Phila., Pittsburgh, Cleveland, Detroit, Chicago, St. Louis

Canadian Agents— **Northern Electric Company**
LIMITED

Montreal, Ottawa, Halifax, Toronto, Winnipeg, Calgary, Regina, Vancouver

Vul-Cot Fibre



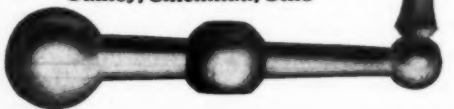
**Handles
From
Steel**

For power tools and similar purposes

Accurate, highly finished, complete on receipt, ready to attach. Manufactured as a specialty, we offer you the result of quantity production, in quality and price. Estimates given on large screw machine work, handles and screws of any description.

Write for price list and discounts

The Cincinnati Ball Crank Co.
Oakley, Cincinnati, Ohio

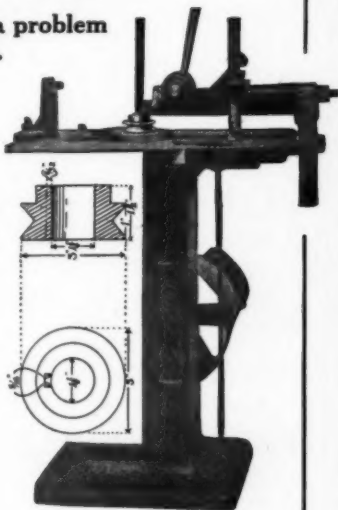


KEYSEATING

need not be a problem
in your shop.

No. 2 Keyseater
showing cutting of
keyway in small
pulley; with a dia-
gram of work.

Time—1 minute.



You may have small jobs
like this one or cone pul-
leys, crank handles or
gears to keyseat. Our
Nos. 1 & 2 machines will
handle them satisfactorily.

DAVIS MACHINE TOOL CO., Inc.

ROCHESTER, N. Y., U. S. A.

A Wonderful Combination In Riveting



- | | | |
|---|--------------------|---|
| } | Speed: | one rivet per second. |
| | Uniformity: | each rivet headed with same degree of tightness or looseness as desired. |
| | Finish: | perfectly formed rivet heads, highly polished surface, no hammer or tool marks shown. |

Grant Noiseless Rivet Spinning Machines, are the only machines built that will accomplish the above.

Catalog ?

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

A Horizontal and Vertical Small Shaper and Slotter

Designed for small work only, and with all the essential features of larger machines,

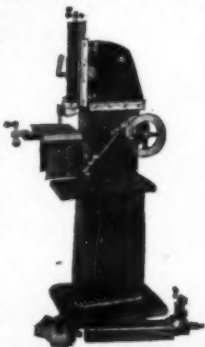
The Improved "Rhodes"

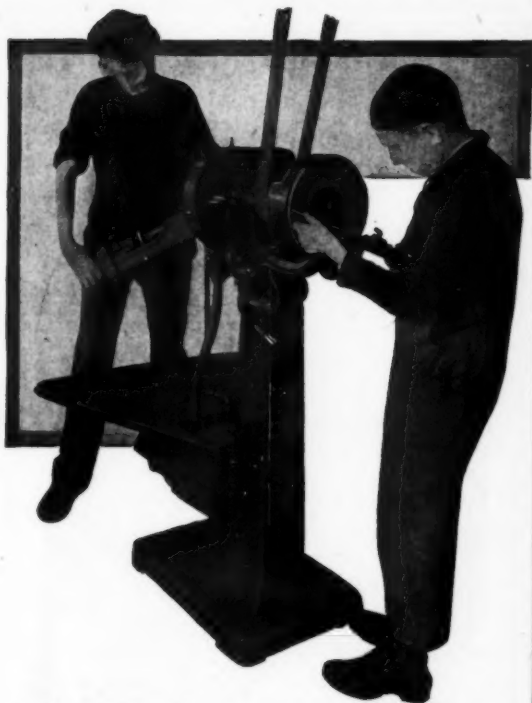
is proving a big cost reducer on tools, dies, models, etc., and in shaping and slotting all kinds of light work.

It is an economy tool in both price and operation, covering a wide range of accurate machining.

Just say "Mail particulars"

Rhodes Mfg. Co.
Hartford, Conn.





Style WPL New Yankee Drill Grinder

(Capacity, No. 60 to 2¼")

Any BOY in your shop can grind a drill better and quicker on a new Yankee than your most skilled mechanic can do it by hand.

Catalog on Request

Wilmarth & Morman Co.

2185 Monroe Ave., N. W.

Grand Rapids, Mich., U. S. A.

Combination Disc Grinder & Roll Sander

"Best machine ever built for pattern shop use"

Patented

The No. 20 Gardner combines both the disc wheel and the sanding roll into a compact, sturdy and accurate machine. The disc wheel is used for producing flat surfaces and external curves; the sanding roll perfects internal curves which have been roughed out on a band saw.

Both this disc wheel and the roll remove stock with extreme rapidity and accuracy. With this machine at hand your apprentice boy can do, with greater speed and quality, much of the work formerly done by your best man. A Gardner No. 20 soon pays for itself in any modern pattern shop working four or more men.



Get the details today

Gardner Machine Co.

The Disc Grinding Authorities

Beloit, Wisconsin

Largest Disc Grinder Builders in the World

Simple, Convenient Attachments

Are provided with the

Greenfield

Trade Mark Reg. U. S. Pat. Office

Universal Grinder



Each Attachment is designed to serve a single purpose. This means that they are simple and without complicated adjustments to make them serve different purposes.

This makes it easy to change from one job to another and will save a lot of time. We have attachments for all kinds of tool sharpening and tool room grinding.

You had better get our literature

Greenfield Machine Company
Greenfield, Mass., U. S. A.

"Quick Work" Edge Turner

For Sheet Metal Up To No. 16 Gauge

Turns the edges of fenders, shields, aprons, tanks, or any sheet metal parts. Easily adapted to your special work, and with suitable rolls, which we can furnish, to beading, crimping, flanging and rotary shear cutting. A very adaptable, convenient tool, that will help you do more work and do it better and cheaper.

We make up-to-date "Quickwork" Rotary Shears, Power Beading and Bending Machines, Power Hammers, etc., that are real helps in all sheet metal work.

Write for "Quickwork" Catalog

H. Collier Smith, 815 Scotten Ave., Detroit, Mich.



The Gray Sheet Metal Cutter Does Not Shear—It Cuts



Hence it does not bend, spring or buckle the sheet, but takes out a clean, smooth kerf, leaving both edges perfect, and the piece the exact shape desired. Cuts sheet metal or plates up to 3-16", at the rate of 20 to 30 inches a minute. No shape too irregular for accurate cutting. The convenience of it, and the economy of it, both in cutting time and in material, make it a money saver from the start.

Ask For Details. They Will Interest You

W. J. SAVAGE CO., Knoxville, Tenn.

Carry Your Grinder to the Work

Not Your Work to the Grinder

Thor

**Portable Electric
Grinder**

Equipped with a universal motor for operating on direct or alternating current, 110 or 220 volt.

(Licensed under Burke Universal Motor Patent)



No. 6 Grinder, Wheel 4"x3/4"x1/2"
Attach to Any Lamp Socket

Thor Portable Electric Grinder is equipped throughout with ball and roller bearings and a specially constructed motor—insuring speed, power, ease of operation and increased capacity.

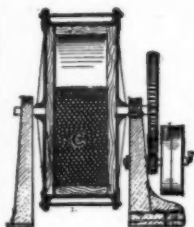
It Runs at 4500 R. P. M.

**Independent Pneumatic
Tool Company**

Chicago New York Pittsburgh Detroit
San Francisco Birmingham Montreal

Do You Burnish—

Steel, Copper, Nickel, Silver, Gold or Plated?



Then the Abbott Steel Ball Burnishing Process

can save you from 75 to 99 per cent over old hand methods of burnishing. It produces a more brilliant surface, without marring, or the removal of material. The finish is perfect.

Glad to burnish samples and submit cost estimates. Our copyrighted booklet sent you on request.

The Abbott Ball Company

Elmwood District, Hartford, Conn.



Hartford Taper Gages

Save time, and to save time is to reduce costs.

Insure accuracy in tapers to less than a thousandth of an inch.

Cost so little for their efficiency in promoting accuracy with so little effort, that the element of cost should hardly be considered.

They are indispensable for the proper measuring of the various tapers on end mills, profile cutters, twist drills, reamers, milling machine arbors, lathe centers, etc., etc.

We are only waiting for you to say the word

Hartford Special Machinery Co.

285 Homestead Ave.,

Hartford, Conn.



"Van Dorn"
ELECTRIC TOOLS

Portable Electric Tools

*Drills, Reamers, and
Grinders for every
purpose.
100% overload
capacity makes them
always dependable.*



*Several types and
sizes. D. C., A. C.
and Universal motors.
Write Dept. H. M. T.
for catalogs and
prices.*

The *Van Dorn* Electric Tool Co.
Cleveland, O.

SALES OFFICES:

New York, N. Y., 30 Church St.; Boston, Mass., 170 Purchase St.;
Pittsburgh, Pa., 701 Empire Bldg.; Chicago, Ill., 691 Monadnock
Bldg.; St. Paul, Minn., 1005 Germania Life Bldg.; San Francisco,
515 Mission St.; Los Angeles, Cal., 325 Security Bldg.; Cincin-
nati, Ohio, 606 Second Nat'l Bk. Bldg.; Kansas City, Mo., 1311
Baltimore Ave.; Atlanta, Ga., 1018 Healy Bldg.; Baltimore, Md.,
339 Title Bldg.; Denver, Colo., 1633 Tremont St.

Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels

" No. 0 32 " "

" No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table

" No. 9 Tilting Table

" No. 10

Boring attachment if wanted.



Jointers

8 in., 5 and 6 ft. tables and guard.
12, 16, 20, 24 and 30 in., 7 ft. tables
and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

Chicago Machinery Exchange

1214-1228 Washington Boulevard, Chicago

Steel Die

Embossed Stationery

looks like solid prosperity. The psychology of creating a favorable impression by mail must necessarily include impressive stationery—neither cheap nor showy—just neat and rich. For that purpose our Steel Die Embossed Stationery is unsurpassed.

It is probably not as expensive as you think

Ask for free Specimen Book and Prices

American Embossing Co.

192-96 Seneca St.,

Buffalo, N. Y.

The "New Britain" Adjustable Shop Stool



With or Without Spring Back. Adjustable 18 to 28 in.

Short men and tall men cannot do as good work all day on stools of the same height as they can if everybody is made comfortable.

Stools of the proper height for each workman promote efficiency to an almost unbelievable extent.

The "New Britain" Adjustable Shop Stool—one stool for all heights—affords the best solution. It may be fastened to the floor or left movable.

Write for the Adjustable Shop Stool Bulletin



**THE
New Britain Machine Co.**

Shop Furniture Originators

New Britain, Conn., U. S. A.



Using a Diamond on their Die Work

A well finished die means a cleaner forging—one that requires less machining when finished. The Strieby & Foote Co., manufacturers of drop forgings, of Newark, use a Diamond Automatic Surface Grinding Machine in finishing all of their dies.

Here is work which is hardened before grinding, which must be accurate, and must have an exceptionally fine surface.

Diamond machines have proved to be the most adaptable in this sort of work because they are tested for .00025" accuracy before shipment, and are built to maintain this accuracy under service conditions. Perhaps you are doing work similar to that in the illustration, and would like to know Diamond possibilities. Write us for data, and ask for our Surface Grinder Catalog "H."



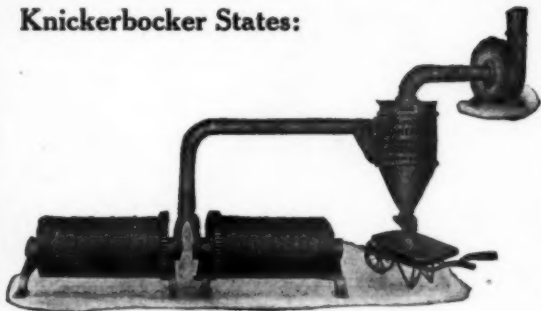
TRADE MARK.





Diamond Machine Company, Providence, R. I.

Knickerbocker States:



A Partial Vacuum **Is the Secret of Its Success**



IN THE MORSE "Rarefied" Dust Collector the fan *draws* the air thru the Collector and maintains a constant vacuum tendency—the "rarefied" principle—in the collector casing. As the dust is collected and automatically discharged before the air reaches the fan, abrasion of fan parts is prevented, repairs reduced to a minimum, and long life given to the fan.

The Morse is accepted as standard in many of the largest plants in the U. S. Eight of these big firms are now using a total of about 80 Collectors—nearly 70 representing repeat orders.

*For top-notch efficiency and economy you need the Morse.
Send for Booklet and get acquainted.*

The Knickerbocker Company
Jackson, Michigan



Rigid Inspection

Maintains the enviable fifty-year reputation for quality and accuracy of

Brown & Sharpe Milling Cutters

We either have in stock or can make to order just the cutter or gang that will lower your production cost and at the same time maintain your reputation for accuracy and quality.

*Our Catalogs Will Interest You
Send for them Today*

Brown & Sharpe Mfg. Co.
Providence, R. I., U. S. A.



This is our **No. 1 Bench Miller**

Our complete line of Millers range from the smallest machine built to our No. 5 (a floor type) weighing 1200 lbs.

We solve Miller problems

Your Troubles
Our Pleasure

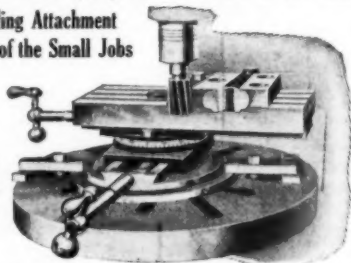
Ask for Catalogue

The Burke Machine Tool Company
Conneaut, Ohio

Leaves the \$1,000 Miller Free

Davis Milling Attachment
Does 90% of the Small Jobs

For the
Diemaker
Repair Shop
Patternmaker
Garage, etc.



IT CONVERTS any drill press, 14 to 42-in. swing, and cuts all kinds of keyseats perfectly; mills deep grooves, slots and cams; handy for spotting castings and other odd jobs. We also make cylinder reamers for reboring Ford car, and a reliable air compressor—all at low factory prices. Write today for particulars and prices.

Hinckley Machine Works, HINCKLEY, ILL.

Your High Speed Steel Scrap Pile

Take a slant at it! Just now, when the price of High Speed Steel is up so far, you want to keep the pile down. Legitimate scrap is O. K., but when you view the pile and see many tools, representing several times the value of the entire pile, it sets you thinking!

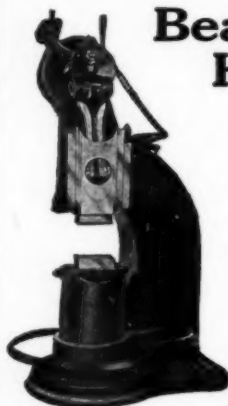
Right then is when you want to think of

"HETZY"
HEAT EASY

the hardening compound that saves tools from the scrap pile, by making it possible to harden High Speed Steel at low temperatures instead of at the old destructive high heats. Three hundred firms in this country have proved it for themselves.

*Our Booklet B-2 tells the whole story.
Send for it.*

Bennett Metal Treating Co.
Elmwood, Conn.



Beaudry Hammers

For General Forging
Saves Fuel, Time
and Labor.

Cuts Forging Costs
in Two.

Belt or Motor Driven

Beaudry & Co., Inc.
141 Milk St., Boston, Mass.

Please Notice

That the Barr Pneumatic Hammer is NOT a Large, Costly Tool for Heavy Work!

It is a small, well built and moderate priced tool which saves its cost every few months on that light tool dressing, forging, drawing, straightening and blacksmithing which you are doing by hand.

It is adapted to many special operations and is much quicker than a drop hammer.

It is used by the leaders!

Write now for Circular 10 H

H. Edsil Barr, Mfr.
Erie, Penna.





**Immediate
Deliveries
on
Whitney
Hand Millers**

We have recently completed a large addition to our factory and are now in position to make immediate deliveries.

The "Whitney" Hand Miller

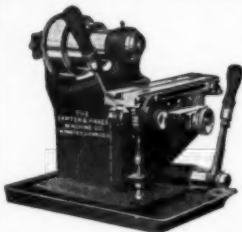
is an all around machine, well built and inexpensive. It has features which make it indispensable in any machine shop. With it you can do keyseating, profiling, straddle milling, gear, cam and sprocket cutting, also countless other operations.

Simply send for Catalog No. 8

The Whitney Mfg. Co., - Hartford, Conn.

Chains—Keys—Hand Milling Machines

If You'll Furnish the Operator



We would like mighty well to furnish the machine. And if the operator will do his part, and do it well, you will do some business and a lot of it, as this little **Miller** is designed and built for just that purpose.

Send for circular

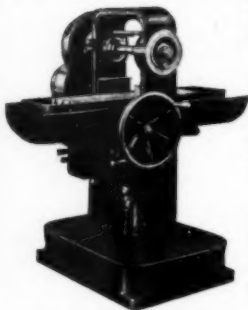
The Carter & Hakes Co.

West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.

WESTERN AGENTS—Marshall & Huschart Machinery Co.,
Chicago, St. Louis, Indianapolis.

Higher Efficiency in Milling



Briggs High Duty for Form and Gang Milling

on steel parts for automobiles, guns, etc. Taking wide cuts in hard steel to the full power of a $3\frac{1}{2}$ in. double belt, makes it also an ideal tool for tool room and general shop use. No tendency to chatter.

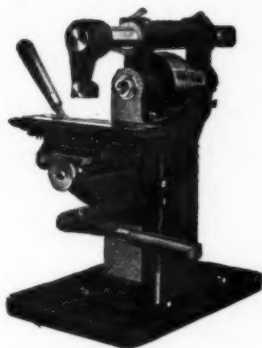
Designed on original lines by a manufacturing engineer, it embodies all that is best in modern machine shop practice.

*Don't miss this for 1917
Write for description*

GOOLEY & EDLUND, Inc., Cortland, N. Y.

“BURKE”

No. 3 Milling Machine



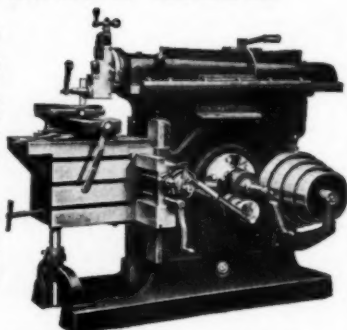
Longitudinal feed of table.....	6 inches
Traverse feed.....	3¼ inches
Vertical motion to knee.....	8¾ inches
Maximum distance between center of spindle and table.....	7 inches
Working surface of table.....	3½x12 inches
Greatest distance between centers (6-inch swing).....	2¾ inches
Largest diameter of cone.....	6 inches
Smallest diameter of cone.....	3½ inches
Driving belt.....	2 inches
Taper hole in spindle.....	B. and S. No. 9
Hole in spindle.....	½ inch
Height over all.....	25½ inches
Loose pulley on countershaft.....	7x2¼ inches
Speed of countershaft.....	280 revolutions
Weight complete.....	235 pounds
Weight boxed.....	300 pounds

The Burke Machine Tool Co.
Conneaut, Ohio, U. S. A.

SHAPERS

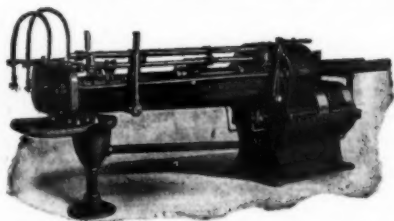
12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

24", 28", 32"
Geared
Shapers of
the Belt Shift
type.



The Smith & Mills Co. Station B,
Cincinnati, O., U.S.A.

Broaching Machines And Broaching Tools



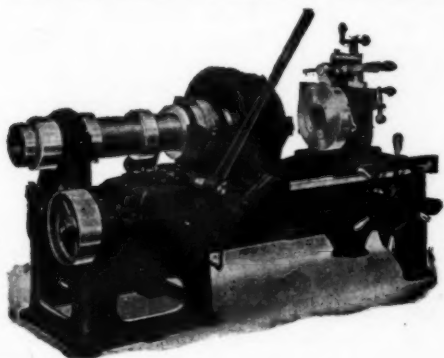
Our Famous Double Machine

The Most Complete Line in The World. We make our machines in 5 sizes and 11 types. *Send for particulars.*

THE J. N. LAPOINTE CO., - - New London, Conn.

A Pipe Threader to Suit the Work

Means Maximum Accurate Production



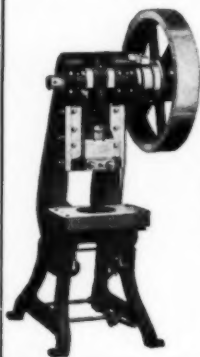
WHETHER YOU ARE a manufacturer who has large quantities of certain sizes of pipe to thread, or one who needs a machine to take care of many small jobs—we can equip you with one or with many machines that will fit the work exactly, and therefor do it most economically.

B. & Ks. are built to stand the wear and tear of constant severe service. The 17 styles and sizes—for pipe from $\frac{1}{4}$ to 18 in.—are all fitted with the famous Peerless Adjusting Mechanism. Adjustments are made instantly to the thousand of an inch without the use the tools.

Let us help to put your pipe threading on the most economical basis. Our long experience is freely at your service.

Bignall & Keeler Machine Works
Edwardsville, Ill.

Here Is A Press



With Plenty of Steam
Back of THE PUNCH

HIGH DUTY
ROCKFORD
PUNCH PRESSES

Made in straight side and
inclinable types. Their great
power backed by rigid design
enable them to do the work
you demand and stand up to it.

Write For Catalog

Rockford Iron Works
Rockford, Ill.

\$40 Emco "W" Power Punch Press

At Foot Press Price

20" High, Weight 110 lbs.
 $\frac{3}{4}$ " Stroke, $\frac{1}{2}$ " Adjustment.
22 lb. Wheel

- ☐ It is accurate, rapid, and strong.
- ☐ For blanking, forming, trimming, bending, etc.
- ☐ We also make the Emco No. 3 open back inclinable press, weight about one ton.

Place your order early



Enterprise Machinery Co., 32 S. Clinton St., Chicago

Partridge Reliable Small Turning Lathe Sets



You will find these are excellent small Lathes. All parts are accurately made and fitted; the bottoms are planed true with the centers. The pulleys are crowned and turned inside. Nos. 1 and 2 have cast iron bearings, and the centers are No. 1 Morse taper. Nos. 3 and 4 have babbitted bearings, and the centers are No. 2 Morse taper.

The four sizes are made to swing 6, 8, 11 and 13 inches, respectively. They are useful for the polishing of small metal parts, and wood-turning. Write for prices.



I also make Grinders, Polishers, Foot Presses, Bench Tapping Machines and Countershafts. Prices of materials are advancing—send me your orders now.

E. O. PARTRIDGE, 2041-2049 W. Lake St., CHICAGO

Arbor Presses

Any width.

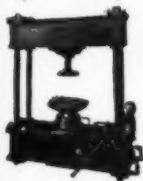
Any tons pressure.

Easiest and quickest
hand press made.



Quick Acting Power Presses

with
Automatic Regulation

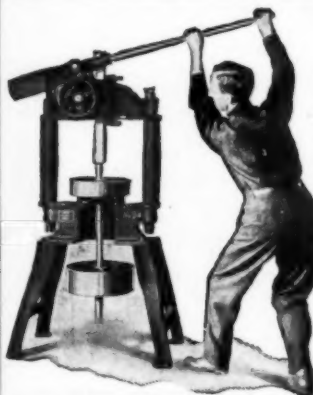


Hydraulic Machinery

Any Capacity
for
Any Pressing Purpose

Write for catalog

LOURIE MFG. CO. Springfield, Illinois



No. 24 Press

Efficient Equipment Atlas Presses

for building and repairing
automobiles and
general machine shop
operations requiring
pressure up to 25 tons
and centering capacity
up to 36 inches.

For driving mandrels;
bending and straighten-
ing, broaching, emboss-
ing with dies, setting
bushings and many
other every day manu-
facturing jobs, there is an
Atlas Press. All sizes
for all purposes. It will
pay you to investigate.

Atlas Press Co.

317 N. Park Street,
Kalamazoo, Mich., U. S. A.

Cap.

20

Tons



Price

56⁰⁰

Net

WEAVER

Forcing Press

WE ARE SPECIALIZING upon this one size and style of press. It is the ONLY press we make, therefore we are able to produce a better article at less money than were we compelled to carry the overhead necessary to produce a great variety of styles.

5-inch, 9-pound channel steel frame, 32-in. wide, 15-in. hand wheel, carried upon ball bearings. Bronze Thrust Bearings, Screw 2 in. in diameter with 3-pitch Acme thread. Range of movement, 12 in. The screw does not revolve.

Net Price (^{32-in.}_{Width}) \$56.00

Weaver Manufacturing Co.

2179 So. 9th Street,

Springfield, Illinois

YOU Want Tool Holders that have MADE GOOD

Armstrong Tool Holders

Were Awarded The

Grand Prize

**The Highest Possible Award at the Panama-Pacific
International Exposition—1915**



They Always Make Good

They Are Used in Most of the Big Machine Shops of the World
Send for Catalog

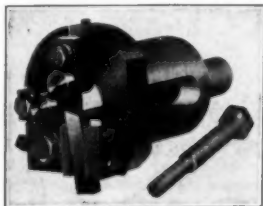
Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



Watson Tangent Cut Box Tools
All Steel

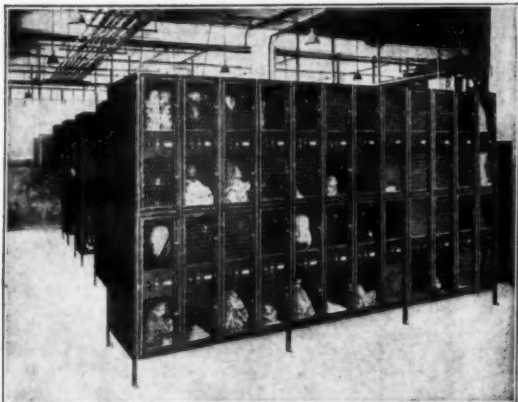


Made in sizes to suit your requirements.

Price and full particulars on request.

The Biggs-Watterson Co.

Guardian Building, Cleveland, Ohio



Terrell's Steel Lockers in a Motor Plant

Wood or Steel?

The sanitary, space-saving, fire-resisting, vermin-proof, Terrell Steel Lockers, or the clumsy, dangerous and often rotten wooden cupboards of by-gone days?

The best in lockers is always the cheapest in the end; and in the beginning the difference between wood and Terrell Steel is not so much as you would think. Wouldn't you like to know just how close we can figure on your locker equipment, or your bins, shelving or your other factory fixtures? Write us. The information will cost you nothing, and place you under no obligation; we are glad to furnish it, while the chances are that it may open the way to a betterment of your plant, new or old, that will be the source of much satisfaction and profit to you.

Now is an Excellent Time to Write

Terrell's Equipment Company

Hall & Division Sts., Grand Rapids, Mich.

Tucker's Safety First

Oil Hole Covers

Require but one hand to pump in the oil. Adapted to all kinds of mechanism having oil holes leading to a bearing, and locate the parts to be lubricated.

*Send for Catalogue
Oil Hole Covers No. 5*



Closed



Open

Style E



Style C



Style F, Drive



Style A



Style D



Style B



Open



Closed



Rotary Head

W.C. & F.C. TUCKER, Hartford, Conn.

Contract Work Wanted

This department is exclusively for those desiring machine, press or die work on contract. Advertisements must be set in uniform style, as shown, and without other display, or any variation in arrangement or in kind or size of type. The heading must express, as nearly as possible, the particular sort of work wanted, in order that any facilities offered may be easily found. Rates: one-eighth page, three months, \$12; one year, \$40.

Gray Iron and Semi-Steel Castings

Let us estimate on your requirements. We have skilled men and first-class shipping facilities. **The Smith & Winchester Mfg. Company, South Windham, Conn.**

Dies, Tools—General Machine Work

We are equipped to render satisfactory service on all kinds of general machine work. No job too big or too difficult. Established 1876. **Chicago Die & Machine Works, 415 N. Carpenter St., Chicago, Ill.**

Metal Stampings—Screw Machine Products

Give us the amount of pieces required of each style. The larger the quantities the closer we can figure. We require absolutely accurate work in our own manufacturing departments, and our rigid inspection service is at your command. **Harvard Electric Co., 527 W. Van Buren St., Chicago, Ill.**

Screw Machine Products—Brass Castings

Right prices. Prompt deliveries. High-grade work. Send us samples or blue-prints for quotations. **Hill Pump Valve Co., Archer Avenue, Canal & 23rd Sts., Chicago, Ill.**

Special Machinery and Punch Press Work

Dies, tools and general machine work. Manufacturers of metal specialties. We are equipped to handle your requirements to your best advantage. **Illinois Die & Tool Works, 162 N. Desplaines St., Chicago, Ill.**

Brass, Bronze and Aluminum Castings

Castings of every description made in brass, bronze or aluminum. Brass finishing, screw machine and punch press products. Polishing and electro-plating. We are fully equipped to furnish complete brass and metal parts of every description. **Kelly Brass Works, 226-232 W. Ontario St., Chicago, Ill.**

Intricate Machines Designed and Perfected, Clock Power Apparatus.

We can improve a defective design, producing a machine that will work, where others have failed. Puzzling problems our specialty. Screw machine products. **Kineto Machine Company, Inc., Mfrs. of the famous "Kineto Advertising Clock," Fourth Floor Monon Bldg., Chicago, Ill.**

CONTRACT WORK WANTED

Inventions Perfected

Years of experience in this work enable me to render you a satisfactory service. Special and automatic machinery a specialty. **R. D. King, Consulting Engineer, 519 Monadnock Bldg., Chicago, Ill.**

Patterns and Models, Wood or Metal

Quality, service and price combined are seldom obtainable. An efficient organization makes this possible here. **W. J. Nobach Pattern Works, 411-413 S. Clinton St., Chicago, Ill.**

Is Your Equipment All Busy?

Why not get in some special work to fill in the idle time? Let the manufacturing public know what you can do, and what machinery you have to do it with. Somewhere there is somebody who can use your facilities to advantage, and if you tell him about them, there is a chance of your getting together and doing business. There is none if you don't. Space in this department costs but little, and covers the metal manufacturing field as with a blanket. Why not try it? See paragraph under the initial heading on preceding page for rates.

Sheet Metal Stamping, Dies and Tools

We solicit your inquiry for sheet metal stamping. Manufacturing a specialty. **Walter L. Schultz, 29 S. Clinton St., Chicago, Ill.**

Gray Iron Castings.

Real Quality.

Concord Gray Iron Castings, heavy, medium and light, are made strictly according to chemical analysis. Quality and service are guaranteed to be unexcelled. We specialize in Machinery Castings. Write us today, or better still, send us some of your patterns for trial order. **The Concord Foundry Company, Elkhart, Indiana. Detroit Representative, E. F. Wilkinson, 393 Vinewood Ave.**

Grey Iron Castings and Machine Work.

Special machinery preferred, and medium weight castings. **Gibson Iron Works, Gibson City, Illinois.**

CONTRACT WORK WANTED

Jigs, Dies, Tools—Stampings and Electro-Plating

Rockford Metal Specialty Co., Rockford, Ill.

Machine Work—Gear Cutting—Patterns, Models.

Good service, prompt deliveries and moderate prices on all kinds of light and heavy machine work, gear cutting, and in patterns and models made to order. Try the "Jansen Service;" you'll be pleased. **T. W. Jansen, 741 21st St., Des Moines, Iowa.**

Patterns and Models—Wood and Metal.

Full machine shop equipment and skilled mechanics. Would like to hear from reliable concerns desiring to contract for good machine work. **Kollmyer & Talbot, Keokuk, Iowa.**

Metal Stampings, Screw Machine & Turret Lathe Products

Reliable company with modern plant and equipment can give your work prompt attention. Brass work a specialty. Excellent facilities for handling quantity orders complete in brass castings or rod. Brass or nickel plated finish. **Manufacturers, Contract Division, P. O. Box 387, Marshalltown, Iowa.**

High Grade Machine Manufacturing

We are equipped to manufacture high grade specialties and intricate machines, such as typewriters, adding machines, etc. Can improve a defective design, producing a machine that will work and sell. We especially desire problems of this kind. Large facilities for small stampings. **Grand Rapids Brass Co., 66-90 Scribner Av., Grand Rapids, Mich.**

What Can You Make on Contract?

There are orders awaiting you, if you will let it be known just what you are prepared to furnish, so that users of such products may know that you are open to make contracts. The circulation of the Machine Tool List covers the entire country, is exclusively among people who make things in metal, and so thoroughly covers your market, whether it be large or small, as to make this department the logical place for such announcements. It is reasonable in cost, and gets to the right people. **A. H. Hitchcock, Publisher, 1220-1235 Caxton Bldg., Chicago, Ill.**

Sheet Metal Stamping and Manufacturing

We solicit your inquiries for light sheet metal stamping and manufacturing of specialties. **O. D. Johnson Stamping Works, Batavia, N. Y.**

CONTRACT WORK WANTED

Die Work

Exceptional facilities for making dies and tools and building machinery. **Titchener Iron Works, Binghamton, N. Y.**

Dies, Gauges, Jigs and Fixtures

Model and experimental work; special machinery built to order; contract manufacturing. Finished parts, of intricate shapes, accurately produced from electrolytic copper. **A. N. Van Deman, 95 William St., New York City.**

Tools—Dies—Jigs—General Machine Work

Screw machine products. Efficient service and prompt deliveries. Send us your blueprints for quotations. **Commercial Motor Car Co., Inc., Owego, Tioga County, N. Y.**

Want Orders for Die Casting?

This is the place where you can offer your facilities to users of metal products everywhere in the United States. Many readers of the Tool List are in the market for die castings, and they would welcome information as to what you can do for them.

General Machine Shop and Foundry Work

Fifty years' successful operation our record. We have a large and well equipped machine shop, also foundry. Plenty skilled labor. Can handle large and small work. Would like contract for a number of large machines, also for automobile parts and other machinery. **Southern Engine & Boiler Works, Jackson, Tenn.**

Work for Your Idle Equipment

You can get it, if you will let manufacturers know just what you can do. Tell them through this department. The cost is small; the distribution covers the metal manufacturing people everywhere in the United States.

Pressed and Stamped Steel Parts

It will pay you to let us figure on such pressed, stamped or drawn metal articles or parts as you may require, be they made of steel, aluminum, brass or copper. Our 15-acre plant at your disposal. Get the benefit of our "Knowing how since '81". Send samples or blue prints for estimate. **Geuder, Paeschke & Frey Co., Milwaukee, Wis., 1325-1700 St. Paul Av.**

Do You Want Contract Work?

If so, state in one of these spaces what you are prepared to do, and it will go into more manufacturing plants than if published in every mechanical journal in this country. The cost is low for a service covering metal-working plants of all kinds everywhere in the United States. **A. H. Hitchcock, Publisher, 1220-1235 Caxton Building, Chicago.**

Want More Orders?

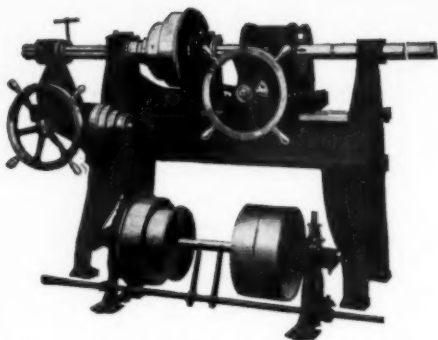
They are to be had for special contract work in machining, stamping, forging, casting, welding or any department of machine manufacturing. The problem is merely to bring the capacity and the demand for it together. If you have the idle capacity, and want work for it, the "Contract Work Wanted" department of the Tool List will help you to get in touch with machine-making plants everywhere in the United States. Its circulation among American metal working plants is country-wide. There is no other available means by which you can reach so many.

Don't let your equipment stand idle. That costs money—a lot more than it will cost you to find work for it. Write me for further information, and for a copy suggestion, which I shall be glad to make without cost or obligation.

A. H. Hitchcock, Publisher

Hitchcock's Machine Tool List

1220-1235 Caxton Building, Chicago, Ill.



Armature & Axle Bearing Borer

Underwood's Big Time Saver

THIS BORER has been perfected so it will chuck and bore a split box in less time than any other machine made. While designed primarily for boring babbitted bearings of electric railway armature and axle shafts, its usefulness is not limited to this class of work.

A wide range of utility has been embodied without any complication. Consequently it's a great time and money saver wherever it can be used. Borer can be operated by unskilled labor.

UNDERWOOD'S LINE OF PORTABLE TOOLS NOW INCLUDES:

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics; facing domes, arms for facing cylinder flanges; rotary flue cleaners; armature and axle bearing borers; pipe benders; locomotive cylinder borers; boring bar for lathe work; crank pin turners; reflex water glass grinders; rail saws; motors, etc.

We've been making 'em for nearly 50 years. Send for Catalog

H. B. Underwood & Company
1016-22 Buttonwood St., Philadelphia, Pa.

Second-Hand Machinery.

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **40 cents a line**, across the page, each issue. Minimum charge, **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. No display in this department.

Write directly to the parties offering the machines for sale for prices and full descriptions. If you do not find listed what you require, use the post card inclosed with each book to make known your wants to the publisher.

FOR SALE BY

F. H. Kappen & Son, Agents, 93 W. Water St., Milwaukee, Wis.

Air compressor, 6x6x7, steam drive.
Blowers, pressure.
Boilers, stationary.
Bolt cutter, 1" Wells.
Cold saws, Burke and Burr.
Drill press, sensitive.
Drill, 20", w. & l. feed.
Drill, 21" Hoefler, b. g. and p. f.
Engines, steam and gasoline.
File sharpener, American.

Lathes, 10x36" Shepard.
Lathe, 14"x6" Shepard gap, c. p. r.
Lathe, 14"x8" Ryerson, c. p. r.
Miller, 24x6½x18" Oesterlein, plain.
Miller, No. 4 Garvin, plain.
Motor, 550 v., d. c., 6 h. p.
Planer, 36"x36"x8" Niles.
Press, No. 6 Perkins geared, 2" str.
Shaper, 24" Hendey, geared.

FOR SALE BY

Springfield Machine Tool Co., 1527 E. Jefferson St., Springfield, Ill.

LATHES.

7x32 precision bench, new.
7x32 Pratt & W., precision bench.
15"x 6" LeBlond, tool room, one
change gear, taper attachment.

14"x 6" Putnam, tool room.
22"x 8" h. s., c. r., raising blocks to
29" swing.
28"x12" Blaisdell, h. s., c. r., modern.

MISCELLANEOUS.

Crank shaper, 16" Smith & Mills.
Crank shaper, 24" Smith & Mills.
Drill, Duntley electric 220 d. c., ½"
and 1½" hole cap.
Grinder, tool post, Duntley electric.
Grinder, tool, univ., Cincinnati.

Motor, electric, 2 h. p. and 7½ h. p.
Sprague, 220 d. c.
Planer, 22x22x5 Powell.
Punch and shear, No. 14½ Williams-
White.
Punch and sh., Kalamazoo, dbl. end.

FOR SALE BY

Cullen Machinery Co., 340 Leader News Bldg., Cleveland, Ohio

Automatic, 4½" Gridley, 6 months old.
Automatics, 24 and 33 New Britain, new.
Boring, drilling and tapping machine, Pond, horizontal, 18" spindle travel
3" diam., 90" maximum distance spindle to floor plate; floor plate 10"x12";
outboard column; elegant condition; b. d.
Locomotive crane, Industrial, 4 wheels, 3-ton cap. at 20' beam standard gauge,
elegant condition.
Milling machine, Ingersoll, single head, 22" vertical adjustment and 30 diam.;
platen 30"x8", motor driven; excellent condition.
Milling machine, Newton, table 30"x8", 1 vert. 1 horiz. head, excellent, b. d.
Planer, 36"x36"x14" American, 4 heads, elegant, m. d.
Press, power, 8"6" Ohl & Co., No. 10 gauge, will bend ¾", weight 24,000.
Punch, Long & Allstatter style A, single, 10" throat, 3" stroke, cap. 2" in 1"
plates, new.
Straddle miller, Beaman & Smith, brand new.
Turret lathe, 22" Libby, new.

WANTED.

Four, five and six foot Radial Drills; Planers.

SECOND-HAND MACHINERY

FOR SALE BY

Brown-McDonald Machinery Co., 2323 N. 9th St., St. Louis, Mo.

LATHES.

13"x 6' South Bend, h. s., compound rest, new	\$ 240.00
15"x 8' South Bend, h. s., compound rest, new	325.00
16"x 8' South Bend, h. s., compound rest, new	390.00
18"x 8' South Bend, h. s., compound rest, new	475.00
15"x 8' Sidney, double bk. geared, q. c. g., h. s., compound rest, new	635.00
17"x 8' Sidney, double bk. geared, q. c. g., h. s., compound rest, new	900.00
14"x 8' Fitchburg, solid spindle, plain rest	175.00
17"x 8' Fitchburg, hollow spindle, plain rest	275.00
18"x 6' Lodge-Davis sliding head turret	125.00
12" Warner & Swasey speed lathe and chuck	50.00

DRILLING MACHINES.

No. 1 Burke, bench, sensitive, $\frac{1}{2}$ " cap., with chuck; new (3), each	\$ 16.50
No. 28 Western Chief, bench, sensitive, $\frac{1}{2}$ " cap.; new (2), each	22.50
20" No. 35 Canedy-Otto, sq. b., wire and lever feed; new	70.00
20" Champion, sq. b., lever feed; new (3), each	70.00
20" Champion, sq. b., wheel and lever feed; new (3), each	75.00
20" Champion, sq. b., back gear, power feed; new (3), each	100.00
26" Aurora, sliding head, back geared and p. g. f.; new	300.00
26" Bickford, sliding head, wire and lever feed	85.00
26" Bickford, sliding head, back geared, wire and lever feed	100.00
36" Bickford, sliding head, back geared, and power feed	250.00

PLANERS.

20"x28"x7' Whitcomb, single head	\$ 450.00
30"x30"x9' New Haven, single head	450.00

SHAPER.

34" Queen City, back geared	\$ 475.00
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PUNCHES AND SHEARS.

No. 6 double end, cap. $\frac{1}{2}$ " in $\frac{1}{2}$ "-6" throat	\$ 150.00
Double end, alligator type, cap. $\frac{1}{2}$ " in $\frac{1}{2}$ "	125.00

SHEARS.

No. 11-A Badger, alligator, cap. $\frac{1}{2}$ x3	\$ 65.00
No. 15-A Niagara ring and circle shear, head only	50.00

SAWS.

Bryant No. 10, Q. & C. cold saw, 20' saw	\$ 150.00
Ryerson, friction, motor driven, 44' saws, 220 v., d. c.	650.00
No. 2 Atkins Kwik-Kut hack saw	25.00
No. 1 Hoefer hack saw	15.00

BRAKES.

4' Dreis & Krump, cap. 16 ga.; new	\$ 65.00
8' Dreis & Krump, cap. 18 ga.; new	110.00
6' Robinson, cap. 20 ga.; (2), each	100.00

COMPRESSORS.

6x6x6 Laidlaw-Dunn-Gordon, steam; cap. 30 cu. ft.	\$ 125.00
8x8 Star, vertical, belted, double acting; cap. 60 cu. ft.	150.00
10x10 Star, vertical, with engine, double acting; cap. 120 cu. ft.	450.00
22x13x22x24 Norwalk, steam; cap. 1160 cu. ft.	1000.00

MISCELLANEOUS.

Air hoist and trolley, 12x48, vertical	\$ 60.00
Beading, crimping and flanging machine, No. A Swaine, power	30.00
Blower, No. 9 Sturtevant	90.00
Blower, pressure, No. 7 Sturtevant on base	75.00
Blower, pressure, No. 10 Buffalo, and c. s.	100.00
Blower, volume, No. 8-B Buffalo	75.00
Buffing lathe, No. 5 Blount, and c. s., new	30.00
Floor crane, No. 4 Hercules	45.00
Grinder, double end emery, No. 7 Blount, and c. s.	50.00
Grindstone frame, iron, for 36x6 stone	25.00
Hammer, helve, size B Rochester	100.00
Hammer, helve, 60 lb. Knowlton	250.00
Index head and center, 12" Garvin	25.00
Screw press, hand, Waterbury, table 30x30	80.00
Slab milling and boring machine, 4' Cincinnati, new	650.00

SECOND-HAND MACHINERY

FOR SALE BY

Henry Prentiss & Company, Inc., - Singer Bldg., New York

Formerly

Prentiss Tool & Supply Company.

BORING MACHINES.

No. 1 Beaman & Smith, double hd.	5" bar Beaman & Smith horizontal.
42" Rogers vertical.	No. 1 Springfield spindle borer.

DRILLING MACHINES.

24" Henry & Wright b. b., sens.	28" Snyder, sliding head.
2-sp. Henry & Wright.	36" Prentice Bros., upright.
4-spindle Woodward & Rogers.	4" Bickford radial.
4-spindle Barr.	5" American radial.
5-spindle Reed.	6" Bickford radial.
20" Prentice Bros., sliding head.	8-spindle Gardam adjustable.
25" Snyder, sliding head.	No. 4 Quint turret.

GRINDERS.

No. 1 Norton univ., c. and t.	No. 6 Bryant internal.
No. 5 Rivett on stand.	No. 2 Hartford surface.
No. 1 Cincinnati, c. and t.	P. & W. vertical surface.

LATHES.

11"x 6' Star, c. r., p. c. f.	18"x 8' American, c. r., q. c., t. a.
11"x 8' Barnes, c. r., p. c. f.	24"x 14' New Haven, c. r., p. c. f., t. a.
16"x 8' Automatic threading.	38"x 10' Harrington, c. r., p. c. f.
16"x 8' National, c. r., q. c.	36"x 14' Pond, c. r., p. c. f.
18"x 8' Reed, c. r., p. c. f.	38-50"x 14' Finfield c. r., p. c. f.
18"x 8' Rahn-Carpenter, c. r., c. p. f.	20-42"x 12' F. & S. gap, motor drive.

MILLING MACHINES.

No. 3 Brainerd plain, vert. att.	Garvin duplex.
No. 5 Brown & Sharpe plain.	Nos. 1 & 2 P. & W. hand.
No. 4 Cincinnati plain.	No. 2 Cincinnati plain.
No. 1 Cooper Bros. vert. die sinker.	No. 3 Reed plain.

PLANERS.

16"x 15"x 3' New Haven.	30"x 30"x 8' Wilson.
24"x 24"x 8' Sellers.	30"x 30"x 8' Hewes & Phillips.
24"x 24"x 5' Whitcomb.	64"x 48"x 30' Pond.

SCREW MACHINES.

2" Cleveland automatic.	4" Rivett, wire feed.
13" Gisholt, taper attachment.	34" Cleveland automatic.
18"x 7" Fay & Scott.	4" National-Acme, automatic.
20" J. & L., single pulley.	14" Rivett, plain turret.

MISCELLANEOUS.

Air compressor, 8"x 8" American.	Keyseater, No. 1 Davis.
Bending machine, 30 ton Watson Stillman.	Keyseater, No. 3 Giant.
Gear cutter, 22" G. & E.	Pipe machine, 4" Saunders.
Gear cutter, 28x10 Cincinnati.	Shaper, 16" Cincinnati.
Hammer, 675 lb. P. & W.	Shaper, 24" Hendey.
	Tapper, 4" Baker Bros.

SECOND-HAND MACHINERY

FOR SALE BY

A. D. White Machinery Co., • 108-114 N. Jefferson St., Chicago

NEW MACHINES.

Drill presses, 20" Lindgren, all-geared, (4).
Drills, sensitive, 2, 3 and 4-spindle style "A" Barr.
Grinders, drill, LaSalle and Eames.
Grinders, surface, Waterbury and La Salle.
Engine lathe, 13"x8' Lancaster.
Engine lathes, 14"x6'-8' Carroll-Jamieson (6).
Engine lathes, 16"x8' Canedy-Otto, (2).
Engine lathes, 18"x8'-10' Mueller.
Milling machines, universal, No. 1½ Valley City, (2).
Milling machines, plain, No. 1½ American, (2).
Milling machine, hand, U. S.
Shaper, back geared crank, 24" Kelly.

SECOND-HAND MACHINES.

SCREW MACHINES.

5-16" LaVigne.	1" Cleveland, friction jigger feed.
7-16" Cleveland, friction fd.	1½" LaVigne, (4).
1" Cleveland, friction fd.	2" Hartford.
1½" Cleveland, friction fd.	2½" Hartford.
1½" Cleveland, jigger feed.	1½" Cleveland, semi-automatic.
1½" Hartford, (2).	15-16" Dreses, hand.

GRINDING MACHINES.

18" Ransom, disc.	1½" Bridgeport floor grinders, (2).
Yankee Style "B", drill.	2" No. 7 Sterling floor grinder.
3-spd. valve grinder.	2" Springfield dbl. wheel floor gr.
No. 6 Diamond floor grinder.	Springfield dbl. wheel, water.
1½" Norton floor grinders, (2).	No. 2 Leland & F. water grinder.

ENGINE LATHES.

12"x 6' Monarch, 2 chucks.	28"x25' Putnam.
16"x12' Beaman & Smith.	30"x14' Blaisdell.
24"x10' Putnam.	36"x20' New Haven.
28"x10' Ffield.	

DRILL PRESSES.

28" Barnes, sliding head.	26" Bickford plain radial.
28" Bickford, sliding head.	3" Dreses semi-univ. radial.
30" Kerkhoff, sliding head.	2 spdl. Rockford.
32" Bickford, sliding head.	8 spdl. Valley City mult., No. 2 taper.
34" Barnes, sliding head.	12 spdl. Baush multiple, No. 2 taper.

MILLING MACHINES AND PLANERS.

No. 4 LeBlond plain miller.	22"x 5' Ingersoll slab miller.
No. 2 Garvin sprocket miller.	32"x32"x 8' Betts planer.
No. 6 Whitney hand miller.	35"x35"x12' Niles planer, two heads.

PUNCH PRESSES.

Nos. 0, 1, 2 and 3 Consolidated, o. b. i.	P-2 Ferracute, solid back, (2).
No. 18 Bliss, o. b. i., (2).	No. 29 Bliss, gang, dbl. action.
No. 21 Bliss, o. b. i.	No. 100 Crosby gang, 30" bet. uprights
No. 4 McDonald, o. b.	150-ton Sellers 36" hy. wheel press.

MISCELLANEOUS.

Blowers, No. 3 and No. 5 Root.	Saw, cold, Bryant, 19½" dia. saw.
Bolt cutter, 1½" National, s. hd.	Saw, cold, No. 5½ Nutter-Barnes.
Die filing machine, Simplex.	Saw sharpeners, Nutter-Barnes, (2).
Hammers, 40 & 60 lb. Bradley, cu. hlv.	Saw, Williamson, tilting band.
Hammer, 500 lb. Sandage, rope lift.	Shaper, 16" Smith & Mills.
Keyseater, 36" Morton portable.	Shaper, 20" Kelley, bk. grd. crank.
Oil gas generator, No. 3 American.	Shear, slitting, No. 380 Toledo.
Punch, New Doty No. 17-C, s. e., 7 thr.	Tapper, 6-sp. No. 6 Bement, grd.
Riveter, 3" Shuster.	Tapper, Newton, pulley.

SECOND-HAND MACHINERY

FOR SALE BY

Stocker-Rumely-Wachs Co.,

117-121 N. Jefferson St., Chicago

Immediate Delivery.

BORING MILLS.

36" Gisholt, turret head.
No. 1 Franklin horizontal.
No. 1 Barnes horizontal.
Bement horizontal.

Lucas horizontal.
32" Niles, car wheel.
No. 31 Lucas horizontal.

DRILLING MACHINES.

34" Industrial radial.
Avey, 1-spindle, b. b., (new).
Avey, 4-spindle, b. b.
12-spindle multiple, P. & W.

No. 30-C Baush, 12-spindle.
Allan, 2-spindle (new).
Allan, 4-spindle (new).

GEAR CUTTERS.

No. 11 B. & S. automatic.
30"x9" Gould & Eberhardt automatic for spur and bevel.
24"x7" Gould & Eberhardt for spur.

36" Walcott, for spur.
48" G. & E. automatic
No. 3 36" Brown & Sharpe automatic.

GRINDERS.

No. 2 Garvin hole grinder.
14"x20" B. & S. plain.
Warner & Swasey cock grinder.
Garvin hole grinder.

B. & S. internal grinder.
Gisholt tool grinder.
B. & S. cutter grinder.
No. 6 Diamond, water tool.

LATHES.

12"x 5' Davis, c. r.
14"x 6' Fairbanks, c. r., taper.
16"x 6' Prentice, c. r.
16"x 6' Sebastian, p. r.
16"x16' Greaves & Klusman, c. r.
17"x10' Blaisdell, c. r.
18"x 6' Bradford, c. r., taper.
18"x 6' L. & S. pat. head, c. r., taper.
18"x12' Barker, c. r.
20"x 8' American c. r., q. c. g.
20"x10' Flather, c. r.

20"x14' Rahn-Carpenter, c. r.
20"x14' Blaisdell, c. r.
21"x12' New Haven, c. r.
21"x12' Bradford, c. r., taper.
24"x12' New Haven, c. r.
24"x13' New Haven, c. r.
28"x28' Schumacher & B., c. r., d. b. g.
28"x12' Fay & Scott, c. r.
32"x16' Blaisdell, c. r.
68"x20' Fifield, c. r., t. b. g.
28"-48"x16' Harrington, gap.

MILLING MACHINES.

Chicago, hand.
No. 2 Rockford, hand.
No. 1 Kempsmith universal.
No. 13 Brown & Sharpe universal.

No. 13 P. & W., Lincoln.
No. 5-B Becker vertical.
No. 6 Becker vertical.

PLANERS.

22"x22"x 4' New Haven, 1 head.
30"x30"x 8' Cincinnati, 1 head.
32"x32"x 8' New Haven.
36"x36"x12' Powell, single head, arranged for two.

36"x36"x16' Sellers, 1 head.
40"x38"x14' Putnam, 1 head.
40"x40"x12' New Haven, 1 head, 1 side head.

SHAPERS.

14" Niles, traveling head.
14" Smith & Mills.
16" Cincinnati.

16" Gould & Eberhardt.
24" Gould & Eberhardt.

SCREW MACHINES.

1 3-16" Hartford automatic.
3" Cleveland automatic.
2" Cleveland automatic.
24" Cleveland automatic.

1" B. & S. plain.
16" P. & W. plain.
No. 3 Bardons & Oliver, plain head.

TURRET LATHES.

16" Lodge & Shipley.
21" Gisholt.
24" Morse.
28" Niles.

No. 2 Warner & Swasey, hollow hexagon.
2"x24" Jones & Lamson.
24" Gisholt, spindle capacity 64".

MISCELLANEOUS.

Centering machine, No. 1 Whiton.
Cold saw, Lucas.
Cold saw, No. 3 Burr.
Cold saw, No. 14 Higley.
Hammer, 100 lb. Bradley helve.

Keyseater, No. 00 Baker.
Keyseater, No. 2 Mitts & Merrill.
Keyseater, No. 3 Mitts & Merrill.
Pipe machine, 12" Bignall & Keeler.

SECOND-HAND MACHINERY

FOR SALE BY

J. L. Osgood,

45 Pearl St., Buffalo, N. Y.

Cutting-off machine, 2" H. & R.
Cylinder borer and grinder, 24"
Davis, jigs and cutter bars.
Disc grinder & press, No. 6 Gardner.
Drill, 36" Hoefler, new.
Drill, 14" Reed, and chuck.
Drill, 20" Snyder, p. f. and a. s.
Lathe, 18"x8" Hamilton, c. r., chuck
fitted.
Millers, hand, Whitney, new (2).

Lathe, 18"x12" Greaves & K., c. r.,
chuck fitted.
Piston & ring mch., Gridley, motor.
Shaper, 15" Hendey.
Surfacing machine, emery belt, 14"
Peerless.
Spur gear testing mch., Gleason.
Turret lathe, No. 5 W. & S. fric-
tion head, (2).

FOR SALE BY

Western Mchy. Co., —C. H. Norton— 12 W. 3rd St., Cincinnati, O.

LATHES.

8"x5" Barnes.
18"x8" Bradford.
18"x8" Lodge & Shipley, q. c. g.
18"x8" Monarch.

18"x8" Niles.
20"x10" Pratt & Whitney.
22"x16" Schumacher & Boye.
24"x12" Springfield.

PLANERS.

Immediate Cincinnati delivery.

32"x32"x10" G. A. Gray planer, two
heads on cross rail.

32"x32"x8" G. A. Gray planer, two
heads on cross rail.

MISCELLANEOUS.

Drill, 21" Sibley & Ware, b. g.
Drill, 48" Niles, b. g., s. l.
Drills, upright, 18" to 48".
Gear cutter, 36" Gould & E.
Generator, Triumph, 7½ k. w., 110 v.

Grinder, wet tool, Gisholt.
Hammer, power post, Kauffman.
Milling machine, Reed, Lincoln.
Pipe machines, hand, 2", 6", 8".
Saws, power, Racine, (3).

Electric drills, machine shop and garage tools.

FOR SALE BY

Frank Toomey, Inc., 127-131 N. Third St., Philadelphia, Pa.

LATHES AND TURRETS.

26"x48"x14" new dbl. spdl. McCabe
lathes, heavy pattern, (11).
32"x12" new Rahn-Larmon.
28"x15" Harrington.
28"x10"x6" Johnson, (3).
20"x10" Bullard.
20"x10" Blaisdell.
30"x10" Fitchburg.
19"x10" Rahn-Mayer.
19"x8" new Sidney, d. b. g., q. c. g.,
swing 21", (6).
17"x8" new Sidney, d. b. g., q. c. g.,
swing 19", (9).
17"x8" new National, q. c. g.

14"x10" Prentice, t. a.
13"x7½" new Carroll-Jamieson.
15"x8" new Carroll-Jamieson.
15"x6" new Carroll-Jamieson.
12"x25" bet. center, new Shepard (4).
24" Gisholt.
2"x24" Jones & Lamson.
2" Cleveland automatic screw mche.
2½" wire feed Foster, ring.
14"x5" Lodge & Shipley, wire feed.
14"x5" Bridgeport.
14"x5" Warner & Swasey, Fox.
¾" P. & W. hand screw machine.

MISCELLANEOUS.

Drill, 28" Superior, slid. hd., new.
Drill, 25" Superior, slid. hd., new.
Drills, 20" Superior, new (3).
Gear cutter, 50"x11", G. & E. auto.
Hammer, 600 lb. Morgan, steam.
Miller, universal, Pedrick & Ayer,
table 48"x91".
Miller, univ., No. 1 Cincinnati, new.
Miller, plain, No. 1½ American.
Miller, hand, No. 0 Steptoe, new.
Miller, hand, Standard, new.

Pipe machine, 10" Bignall & Keeler.
Planer, 42"x42"x10" Fitchburg, 2 hds.
Planer, 30"x30"x12" Whitcomb.
Planer, 22"x22"x6" Powell.
Shaper, 24" Flather, back geared.
Shaper, 20" Ohio, b. g.
Shaper, 20" Cincinnati, back geared.
Shaper, 15" Bement, traveling head.
Slotter, 10" Lowell.
Tapping & drilling mche., 36" Baker.

SECOND-HAND MACHINERY

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

210-212 Washington Ave.,

St. Louis, Mo.

LATHES.

11"x 5' Prentiss.	18"x 8' Rahn & Larmon, q. c.
14"x 8' Putnam.	20"x 8' Rahn & Larmon, q. c.
17"x 8' Cincinnati.	24"x 12' Economic, quick chg. gear.
18"x 8' Lodge & Davis.	26"x 12' Reed.

DRILLING MACHINES.

20" Barnes.	42" Niles gooseneck.
28" Lodge & Davis, sliding head.	Tapping machine for pipe fittings.

PLANERS AND SHAPERS.

24"x24"x 6' American planer.	14" Lodge & Davis shaper.
36"x30"x 8' Powell planer.	24" Steptoe shaper.
60"x12"x16' Fitchburg planer.	

AIR COMPRESSORS.

6"x6" belted.	12"x12"x16" steam driven.
8"x8" belted.	600 cu. ft., belted.
10"x10"x10" steam driven.	1600 cu. ft., steam driven.

MOTORS.

5 h. p., 3 ph., 60 cy., 220 volts.	50 h. p. 220 volt, d. c.
17½ h. p., 3 ph., 60 cy., 220 v.	50 k. w. 250 volt, d. c. generator.
25 h. p. 220 volt, d. c.	55 h. p. 500 volt, d. c. motor.

MISCELLANEOUS.

Bolt cutter, 2" Schlencker.	Pipe machine, 4" portable.
Bolt cutter, 1½" Foote-Burt.	Pipe machine, 6" Williams.
Boring machine, 2-spindle horizontal, Newton.	Punch and shear, W.-W. No. 17.
Hammer, 80 lb., Yeakley.	Punch and shear, Bremmer comb.
Hydraulic press, 25-ton vertical.	Riveter, 10" cylinder compression.
	Turret lathe, 3"x36" Jones & L.

FOR SALE BY

Niles-Bement-Pond Company,

111 Broadway, New York

Located at Chicago, Boston and New York.

LATHES.

12"x 5' speed lathe.	Niles double axle lathe.
15"x 7' P. & W. speed lathe.	Putnam heavy double axle lathe.
16"x 8' VonWyck, qck. chg., c. r.	42" Niles car wheel lathe.
Bement double axle lathe.	79" Pond driving-wheel lathe.

TURRET MACHINERY.

3" Acme, old style, 4-spindle, auto.	4" Spencer, single turret, automatic.
24"x26" Pratt & Whitney turntable for chucking work.	36" Brown & Sharpe vertical turret chucking machine.

PLANERS.

22"x22"x 6' Harrington.	42"x42"x20' Miles, 3 heads.
30"x30"x 8' Niles, 1 head.	48"x48"x20' Sellers, 2 heads.
36"x36"x14' Gray, 1 head.	

DRILLING MACHINES.

13" friction, sensitive.	No. 13 Pratt & Whitney multiple.
14" 3-spindle Henry & Wright.	No. 1 Pawling & H. horizontal boring and drilling.
17" 4 spdl. gang, Jones & Lamson.	Dallet and Prentice portable drills.
No. 14 Pratt & Whitney multiple, 1" capacity, arranged for 16 spindles.	24" Grant, plain radial.
No. 10 Pratt & Whitney multiple, 1½" capacity, 10 spindles.	34" Bement, plain radial.
	4" Barr, old style plain radial.

MISCELLANEOUS.

Air compressor, 215' Ingersoll-Sargent, 220 v., motor driven duplex.	Engine, 75 h. p.
Crane, 50-ton, 65' 220 v., d.c. motors.	File sharpener, American.
Cut-off machine, 4½" Starr.	Grinder, automatic, for saw blades.
Engine, 500 h. p.	Grindstone, 34", iron frame.
Engine, 100 h. p.	Spline miller, Pratt & Whitney.

SECOND-HAND MACHINERY

FOR SALE BY

Brownell Machinery Co.,

Cutting-off mch., 3" Hurlbut & R.
Drill press, 24" Baker heavy duty.
Drill press, 24" Foote-Burt hvy. duty
Gear generators, 12" Gleason, single
tool, (2).
Gear generator, 15" Gleason double
tool.
Grinder, 6x36 Pratt & Whitney.
Lathe, 16"x7" Oliver, new.
Lathe, 20"x12" Perkins.
Lathe, chucking, 20"x6" Florence.
Lathes, 18"x10" Rahn-L., new, (2).
Lathe, 18"x12" Rahn-Larmon, new.

11-13 Eddy St., Providence, R. I.

Lathes, turret, 21" Gisholt, (4).
Milling mch., Hendey No. 14 univ.
Milling machine, No. 2 Becker vertical,
with rotary.
Milling machine, No. 5 Becker vertical,
with rotary.
Milling machine, Garvin No. 15 pl.
Press, No. 20 Bliss, inclinable.
Press, No. 4 Manville, power, pillar
pattern.
Radial drill, 3" Prentice.
Screw mch., No. 2 Southworth, new.

FOR SALE BY

Cyril J. Bath & Co., Offices 428 Leader News Bldg., Cleveland, O. Warehouse 1031 West Front St.

Automatic, 7"x14", Potter & Johnston, very good.
Automatic, No. 52 National-Acme, 4 spindle.
Automatic, No. 54 National-Acme, 4 spindle.
Automatic, No. 55 National-Acme, 4 spindle.
Automatic, No. 515 National-Acme, 4 spindle.
Automatics, Nos. 22 and 25 New Britain full automatic, new.
Cylinder boring machine, 2-spindle horizontal Beaman & Smith, adj. heads,
4" spindles, 36" feed, square swivel table 42", rapid power return.
Cylinder boring machine, 2 spindle Foote-Burt, adj., 10" feed, 4" spindles.
Drill press, 30" Aurora, sliding head, back geared, good.
Gap grinder, 19"x34"x72" Queen City, good as new.
Lathe, 30"x12" Pond engine lathe, compound rest.
Lathe, 30"x16" Fifield, compound rest, old style, fair.
Nut tapping machine, 4-spindle, 14" Acme, semi-auto.
Punch press, Stiles, fly wheel type, 14" adjustable stroke, 24" wheel.
Radial, plain horizontal, 5' Pond, belt drive, good condition
Stud threading machine, National-Acme, capacity up to 1" diam., 6' long,
good as new.

FOR SALE BY

Peninsular Machinery Co.,

Countershaft, 1 15-16" with 18x5 t. & l.
Chuck, 24" 4-jaw, Ind.
Drill, 10" Hoefler, disc.
Drill, 14" single spindle sensitive.
Drill, 12" Barr sensitive.
Drill, 4-spindle Bickford.
Drill, 14" Allen sensitive.
Drilling head, 2-spindle, 3" to 8".
Drill, 3" Fosdick radial.
Drill, 14" Mechanics, stationary hd.
Flexible shaft, with c. s., Stow.
Forming roll, 14 ga. 48" long.
Grinder, emery, No. 3 Blount.
Grinder, cutter, No. 1 Garvin.
Grinder, cutter and tool, LeBlond.
Grinder, twist drill, New Yankee.
Grinder, surface, planer type.
Groover, No. 3 Niagara.
Hack saw, No. 11 Millers Falls.
Key lathe, 12" Cobb, double end.

110 Beaubien St., Detroit, Mich.

Lathe, 14x5 LeBlond, rapid prod.
Lathe, 14x6 LeBlond, rapid prod.
Lathe, 14x8 LeBlond, engine, c. r.
Lathe, 14x8 LeBlond, engine, c. r.
Lathe, 17x10 LeBlond, automobile.
Lathe, 19x8 LeBlond, automobile.
Lathe, 20x8 LeBlond, engine.
Lathe, 15x6 Sebastian c. r.
Miller, hand, No. 1 Whitney type.
Miller, 04 LeBlond, plain.
Miller, No. 1 Van Norman, hand.
Miller, No. 1 U. S., hand.
Press, No. 33E Michigan, geared.
Press, No. 1B, Michigan, plain.
Screw machine, plain, No. 0 Foster.
Screw machine, plain, No. 3 Foster.
Screw machine, grd., No. 3 Foster.
Screw machine, grd., No. 5 Foster.
Screw machine, grd., No. 8 Foster.
Screw machine, grd., No. 10 Foster.

SECOND-HAND MACHINERY

FOR SALE BY

Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.

LATHES.

48"x22' Pond, c. r. | 14"x 6' Lodge & Shipley, hol. spdl
18"x10' Hamilton, hollow spindle. | 14"x 5' Fitchburg, r. f. r.
17"x 5' Johnson, c. r. | 11"x 5' Reed, r. f. r.

MISCELLANEOUS.

Bolt cutter, 14" Wells Bros.
Boring mills, turret head vertical, 36" Brown & Sharpe, (2).
Broaching machine, No. 3 Lapointe.
Chucking lathes, three 24" Davis.
Chucking lathes, automatic, five Potter & Johnson, spindle cap. 4 1/2" and 2 1/2"
Cold cutting-off saws, capacities 4", 5" and 6" round.
Gear cutters, 36" Whiton and 36" Gould.
Milling machines, No. 2 Pratt & Whitney, plain table 20"x7"; No. 3 Garvin hand plain millers.
Pipe cutting and threading machines, 4" and 6"
Planers, 24"x24"x6' New Haven, with 1 hd.; 30"x30"x6' Smith, with 1 head.
Radial drill, 20" Harrington.
Slab miller, 17"x8' Beaman & Smith, with two horizontal spindles.
Stamping and punching presses, a large number of the open back inclinable straight side and arch types.
Turret lathes, Jones & Lamson, 3x36.

FOR SALE BY

The Osborne & Sexton Machinery Co.,

Columbus, Ohio.

LATHES AND TURRET LATHES.

13-15-16 and 18 O. & S., h.s., c.r., new.
13"x 5' LeBlond, hol. spdl. comp. r.
14"x 6' Bradford, power feed turret.
14"x 6' Blaisdell, taper, (2).
15"x 6' LeBlond, hol. spdl. comp. r.
16"x 6' Greaves & K., h.s., c. r., (2).
16"x 8' Bradford, hol. spdl. comp. r.
20"x 8' Hamilton, h.s., d.b.g., new(8).
20"x10' Putnam, overhauled.
21"x14' Fifield, comp. rest.
22"x 8' Schumacher & B., h. s., c. r.

24"x16' Dietz, 5" h. s., c. r., taper.
15"x 6' Fox universal lathe.
16"x 6' back geared turret.
18"x 6' Mueller, turret on shears.
2"x24" Jones & Lamson, (2).
3"x36" J. & L., cross slide head.
24" Gisholt, 4" hollow spindle.
Warner & Swasey No. 6.
Warner & Swasey No. 2, hol. hex.
1" Garvin hand screw machine.

SHAPERS AND PLANERS.

15" Hendey tool and die shaper.
15" American, crank.
16" Steptoe crank.
16" Springfield, back geared crank.
20" Hamiton, back geared crank.

20" Ohio, new.
22" Walcott power down feed.
20"x20"x 4' Industrial.
30"x30"x 8' Bement, 1 head.
30"x30"x12' Pond, 1 head.

MISCELLANEOUS.

Boring mill, 6' Niles double head.
Broacher, 6 1/2" stroke Waterbury.
Centering machine, 6" P. & W.
Cut-off machine, 3" Davis.
Drills, flexible shaft (2).
Drills, 14" Henry & W. hi-spdl., (2).
Drills, hi-speed, 23-32"—32 tapered.
Drills, sensitive, 1, 2, 3 and 4 spindle.
Drill, 26" sliding hd. Sibley & Ware.
Drill, 28" sliding head Aurora.
Drill, turret, 6-hole Quint.
Drill, 7-spindle, adj. centers.
Gas engines, 4 to 150 h. p.
Gear cutters, B. & S. No. 13, (2).
Grinder, tool, Gleason.
Grinder, surface, 24x12.
Grinder, 10"x20" Landis universal.
Grinder, 12"x32" Landis plain.

Hammer, power, 100 lb. upright.
Hammer, drop, 750 lb. Toledo.
Lathe, 24" Gisholt, 4" hol. spdl.
Miller, 24x7x19 Cincinnati.
Miller, No. 7 Becker.
Miller, Gooley & Edlund, 38" fd.
Motors, 2 to 25 h. p., 3 phase, 230 v.
Pipe machines, 2", (2).
Press, 7,000 lb. Waterbury, 6 1/2" stroke.
Press, 102" Ohl. 24000 lbs.
Riveter, 4" Shuster, 20" throat.
Rolling mill, 22"x13" Toledo, 16000 lb.
Shear, squaring, 36" gap, 15" cap.
Straightening rolls, 30".
Tapper, vertical, Garvin No. 1.
Threading mche., Webster & Perks.
Variable speed transmission, Reeves.

SECOND-HAND MACHINERY

FOR SALE BY

Neidow & Payson Co.,

9 So. Clinton St., Chicago, Ill.

Automatics, 8" to 2".
Boring and turning mills, 41" to 100".
Borer, 2-spindle cylinder.
Cold saw, 36" blade.
Drills, multiple gpdl. and sensitive.
Gear hobber, 18" Grant-Lees.
Gear cutters, G. & E. and B. & S.
Grinder, 10"x36" Landis.
Hammers, steam, 600 to 3000 lbs.
We can ship heavy duty Lathes, 28" to 42" swing, any length, in 30 days.

Hammer, board, 1300 lb. B. & S.
Lathes, 9" to 90" swing.
Lathes, 2" and 3" J. & L.
Miller, No. 3 Brainard plain.
Miller, P. & W., spline.
Miller, 72"x48"x16", slab.
Planers, 26" to 72" wide.
Press, screw, pwr., No. 2 Amer. Can.
Press, 200 ton Niles car wheel.

FOR SALE BY

Wayne Machinery Co.,

Taylor St. & L. E. R. R., Fort Wayne, Ind.

Bolt cutters, 4" & 1" Acme.
Bolt cutter, 14" National.
Brake, 8" J. M. Robinson.
Drill, 12" Barnes, geared.
Drill, 14" Champion, geared.
Drill, 23" Springfield, b. g., p. f.
Drill, 22" Barnes, p. f., b. g.
Drill, 30" Snyder, p. f., b. g.
Gear cutter, Walcott.
Grinder, No. 1 Woodward & Rogers, surface.
Lathe, 9x45" Rockford engine.

Lathe, 15"x54" American No. 1, brass.
Planer, 12"x12"x24" Wilkenson Co.
Planer, 16"x16"x3' Whitcomb.
Planer, 24x24"x6' Smith Silk Co.
Press, plain, No. 32 Toledo.
Riveter, No. 530 Prouty.
Screw machine, 16" P. & W., g. f. h.
Shaper, 16" Hendey.
Tire welder, No. 4 L. & A.
Turret lathe, 16" Warner & Swasey.
Welding machine, No. 6-A Toledo electric butt welder.

New tools for any requirement.

FOR SALE BY

McCoy-Brandt Machinery Company

Office and Warehouse 216-218 Penn Ave., Pittsburgh, Pa.

ELECTRIC TRAVELING CRANES.

3 ton, 47'0" span, 3 motor, 110 v., d. c.
5 ton, 47'0" span, 3 motor, 110 v., d. c.
7½ ton, 47'0" span, 3 motor, 110 v., d. c.
8 ton, 38'10" span, 1 motor, 220 v., d. c.
3½ ton, 23'5" span, 3 motor, 230 v., d. c.
25 ton, 75'0" span, 3 motor, 500 v., d. c.

10 ton, 38'0" span, 3 motor, 500 v., d. c.
5 ton, 38'0" span, 3 motor, 500 v., d. c.
1½ to 7½ ton, hand, 22' span (15).
20 ton, 54'10" span, girders only.

List continually changing

We buy cranes of every description.

CRANE CONTROLLERS.

25 h. p. Morgan, 500 v., d. c., (2).

3½ h. p. Morgan, 500 v., d. c.

BULLDOZERS.

No. 5 Williams-White, 20" stroke.

No. 4 Williams-White, 18" stroke.

No. 12 Ajax, 30", 16" and 9" stroke.
Dbl. end, 18" stroke, cross hd. 45x12"

LATHES.

36"x16" American, c. r.

30"x15" New Haven, p. r.

24"x14" L. & S., geared head, c. r.

20"x8" Schumacher, c. r.

18"x8" 6" L. & D., c. r., t. a.

18"x8" L. & S., geared hd., c. r., t. a.

MOTORS.

50 h. p. G. E., 3-60-220-900 rev.

100 h. p. Westg., 250 v., d. c., 680 rev.

40 h. p. Westg., 125 v., d. c., 300 rev.

10 h. p. Westg., 500 v., d. c., 1200 rev.

5 h. p. Lundell, 110 v., d. c., 1465 rev.

3 h. p. C.-W., 110 v., d. c., 1465 rev.

PLANERS.

72"x72"x18" Sellers, 4 heads.

60"x60"x24" Cincinnati, 4 heads.

52" (widened to 74")x24", 1 head.

24"x24"x4" Pond, single head.

MISCELLANEOUS.

Boiler, 100 h. p. Erie Economic.

Bolt cutter, 14" Morgan, motor drive.

Boring mill, 8" Bement 2 hds., m. d.

Compressor, belted 9x9" Hall 88 cu. ft.

Drill press, 26" New Haven, sl. hd.

Milling mche., No. 9 Kempsmith, pl.

Punch & shear (dbl.) cap. 3½ thru 2"

Rolls, straightening, 56" cap. 4" plate.

Good equipment—Quick shipments.

SECOND-HAND MACHINERY

FOR SALE BY

W. L. Perkins, Jr.,

30 Church St., New York City.

LATHES.

20"x 6' Blaisdell, c. r., cross feed.
20"x 8' Blaisdell, c. r., cross feed.
26"x16' Shell boring.

40"x12' Fitchburg, c. r., cross feed.
40"x18' Shell boring.
71" Sellers, double head wheel.

PLANERS.

24"x24"x6' Gray, single head.
36"x36"x12' Niles, four heads.
40"x40"x12' Putnam, single head.

42"x42"x19' Putnam, two heads.
72"x72"x8' Sellers, three heads.

MISCELLANEOUS.

Bolt cutter, 24" Acme, single head.
Boring mill, 42" Niles car wheel.
Flanging press, 115-ton Bement.
Hammer, steam, 2500 lbs. Bement, single frame.
Miller, 34"x14' Bement, slab.

Hammer, steam, 4500 lbs. Bement, double frame.
Miller, 30" Sellers, vertical.
Nut tapper, Acme six spindle.
Punch, No. 3 Long & Allstatter (spacing).

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

14"x8' Blaisdell, p. r.
16"x8' Bullard, p. r.
16"x8' Lodge & Shipley patent head, g. c. g., pan bed.
18"x6' Fitchburg, c. r.

18"x8' LeBlond, compound rest.
18"x19' Flather, c. r., t. a., g. c. r.
20"x6' New Haven, c. r.
22"x8' Flather, c. r., standard.
26"x16' Bridgeford, patent head.

FOX LATHES.

14"x8', square arbor, set-over tail-stock, (2).

20" American, universal turret.

TURRET LATHES.

18" Lodge & Davis, gear feed head, automatic chuck.
14" W. & S. plain head.
28" Gisholt complete, motor driven, 110 or 220 d. c.

No. 7 Bardons & Oliver, gear feed head, with vertical forming attachment.

14" Lodge & Davis, plain head.
21" Gisholt with t. a.

UPRIGHT DRILLS AND RADIALS.

26", w. & l. fd., s. b., (2).
Sensitive drills.
20" b. g. & p. f., s. b., (2).

No. 4 type B. W. Sipp 4-spindle high-speed, (new).

MULTIPLE DRILLING MACHINES.

Detroit 5-spindle horizontal semi-automatic.

3 and 6-spindle sensitive.

BORING MILLS.

36" Barrett horizontal cylinder boring, (2).
Head plate boring lathe.

34" Colburn vert. boring and turning mill, 3-jaw chuck, table.

GRINDERS.

Warner & Swasey cock grinders.
Size "D" Gorton, 18" discs.

Rowbottom, 16" discs.
14" & 20" wet grinders, (5).

SHAPERS.

14" Fitchburg, traveling head.
16" Walcott, plain crank.
16" Juengst, geared.

16" Smith & Silk, crank.
20" Smith & Mills, b. g. crank.

SCREW MACHINES.

No. 0 Brown & Sharpe automatic.

No. 00 Brown & Sharpe automatic.

MISCELLANEOUS.

Bolt cutter, 14" Wells, single head.
Cold saw, No. 11 Higley.
Cold saws, 12" Burke, (2).
Grinder, internal, type "D. E."
Hisey, 12" extension, 110 d. c.
Grinder, tool post, type "B" Hisey, 110 d. c.
Keyseater, Morton, draw stroke.

Oil separators, No. 150 Curtis, ball bearing, (2).
Pipe machine, 4" Williams.
Planer, 30"x20"x 3' spur.
Profiler, 2 spindle, No. 2 Garvin, Wesson drive.
Pulley lathe, 36" Stevens, with boring attachment.

SECOND-HAND MACHINERY

FOR SALE BY

Enterprise Machinery Co.,

Bolt cutter, dbl. hd. 2" \$650 14" 8 450.
 Enam. oven 6'x6'x8' 175.
 Gear cutter, Barber-C. 1150.
 Lathe, 18"x12' Blaisdell c. r. pcf. 400.
 Miller, hand, Pond 9"x5"x3" 75.
 Miller, Brainerd, plain b. g. 375.
 Miller, Brainerd, div. hd. fine. 875.
 Miller, vertical, rotary attach., heavy, little used. 500.
 Oil separator, American, 14 qts. 75.

32-34 S. Clinton St., Chicago, Ill.

Planer, 42"x42"x15', 2 heads. \$1200.
 Punch press, No. 1 Am. Can. 175.
 Punch and sh. 4" to 1" \$115 to 290.
 Punch pr., No. 4 Consolidated 435.
 Screw machine, 2" Cleveland 1085.
 Screw mch., Acme 4" (2) 700 & 1075.
 Shaper, 16" Gould & E. 300.
 Wire straightener, 15' 475.
 Over 500 other tools; write us.
 See our small punch ad elsewhere.

FOR SALE BY

Badger-Packard Mch. Co., 72-74-76 W. Water St., Milwaukee, Wis.

DRILLING MACHINES.

14" Mechanics, lever feed, round base, (2).

3-sp. Henry & Wright, ball bearing.

24"x12' Perkins, compound rest, solid spindle, countershaft.

Air compressor, 3 1/2x4 1/2" type AO Gifford.

Air compressor, 3x3 Mayo.

Grinder, water, 20" Diamond No. 64.

Hack saw, No. 2 Racine high speed practically new.

Hack saw, No. 7 Racine high speed.

Hammer, drop, 100 lb.

Lathe, 9" foot power, No. 4 Barnes.

14" Excelsior sensitive, lever feed, round base.

9"x4' Star No. 10-E.

MISCELLANEOUS.

Lathe, 12"x4 1/2", Martin Fox.

Oil separator, No. 2 National.

Pipe machine, duplex, No. 6 Bignall & Keeler.

Press, bench, Niagara, foot power.

Press, H. W. Dopp, foot power.

Planer, 30x30x7 Putnam, with one head on cross rail.

Screw mch., No. 2 1/2 P. & W. pl. hd.

FOR SALE BY

Broadway Machinery Co., 236-238 Broadway, Cincinnati, Ohio

UPRIGHT AND RADIAL DRILLS.

3' Prentice Bros. radials, gear box drive, (5).

26" Prentice Bros. drills, gear box drive, tapping attach., (2).

26" Prentice, no tapping attach.

8" Davis, old style crank.

21" Juengst, b. g. crank.

14" Steptoe, plain crank.

No. 2 Kemp Smith, pl., no back gr.

No. 15 Garvin, plain b. g.

GEAR SHAPERS, PLANERS AND MILLING MACHINES.

26" Cincinnati automatic.

No. 12 Brown & S. automatics, (4).

Whiton automatics, (3).

BORING MILLS AND J. & L.

32" Rodgers, turret head.

34" Colburn, turret head, (2).

ENGINE LATHES.

14"x 5' L. & Shipley, q. c.

14"x 6' Reed, c. r.

14"x 6' Fitchburg, c. r.

17"x 8' Prentice, c. r.

22"x12' Schumacher, c. r.

22"x12' New Haven, c. r.

34' Fossdick radial.

32" Pratt & Whitney upright.

Footo-Burt heavy duty 20".

Barnes 20" three spindle.

Barnes 20" four spindle.

36"x36"x12' Davis Egan, 2 heads.

36"x36"x10' Pond type, 1 head.

32"x32"x10' American, 1 head.

32"x32"x 8' Gray, 1 head.

48"x48"x25' old style, 1 head.

Bilgrim 16" gear shapers, (4).

No. 60 Heald grinder.

No. 15 Landis universal grinder.

2x24 J. & Lamson, no equip., (2).

2x24 J. & L., bar and chuck equip.

24"x12' Prentice, dbl. bk. gear.

26"x16' Niles, c. r.

28"x14' Prentice, dbl. bk. gear.

30"x10' Ffield, c. r.

30"x12' New Haven, c. r.

30"x22' New Haven, c. r.

SECOND-HAND MACHINERY

FOR SALE BY

The Randle Machinery Co., 1739 Powers St., Cincinnati, Ohio

ENGINE LATHES.

All in stock.

- 14"x 6' Flather, hollow spindle, 3' between centers.
- 16"x 6' Flather, hollow spindle, 3' between centers.
- 15"x 4'9" Sebastian, hollow spindle, 28" between centers.
- 16"x 6' Reed, hollow spindle, 3' between centers.
- 16"x 6' Barker, hollow spindle, 3' between centers.
- 16"x 6' Lodge & Shipley qck. chg. gear, hollow spindle 3' between centers.
- 16"x 8' Gray, hollow spindle, 5' between centers.
- 18"x10' Bradford, hollow spindle, 7' between centers, with taper attachment.
- 18"x12' Greaves & Klusman, double hollow spindle, with 2 head stocks, two tail stocks, one steady rest, two compound rests, two countershafts. Can be used as two lathes for small work.
- 21"x10' Imperial, hollow spindle, takes 7' between centers.
- 21"x12' Ohio, 9' between centers.
- 24"x 9' Pratt & Whitney, hollow spindle, 4' between centers.
- 24"x10' heavy Muller solid spindle lathe, 5' between centers.
- 24"x12' Lodge & Davis lathe, heavy solid spindle and cabinet legs, 8' between centers.

We also have in stock engines, boilers, motors, generators, and power plant machinery of all sizes and kinds. Send us your requirements.

FOR SALE BY

D. M. Osborne Machinery Co., Cleveland, Ohio

Office: 917 American Trust Bldg., Warehouse: W. 9th & Front Sts.

GRINDERS.

- 16"x72" Queen City plain gap grinder, capacity 30"x15" in gap. All regular equipment, used less than two months.
- 16"x72" Brown & Sharpe No. 5 universal grinder with internal attachment, all in good operating condition.

PLANERS.

- 30"x30"x8' Gray spur geared planer, single head.
- 30"x30"x8' Cleveland open side planer, one head on rail, one side head, used but little and equal to new machine.
- 52"x52"x24' Betts spur geared planer, two heads on rail.
- 60"x48"x12' Gray spur geared planer, two heads on rail.

LATHES.

- 16"x14' American quick change gear, actual swing 18" over V's, comp. rest, full equipment, used about 6 months. Good as new with chuck fitted.
- 20"x17' Jones & Lamson engine lathe, 158" centers, hollow spindle, screw cutting, transposing gears for metric threads, compound and plain rests, raising blocks to swing 31", excellent condition.
- 28"x10' Pond, compound rest, center rest, screw cutting, 5 step cone, 6" centers, double friction counter-shaft, good heavy machine.

MISCELLANEOUS.

- Bolt cutter, 1" Acme, double head, full set of dies, class A machine, with pump, etc., used but little, fine condition.
 - Cold metal saw, 26" Newton, carriage travels 42", cap. 7" rounds, 24" beams or channels, 5 saws, good condition.
 - Keyseater, No. 3 Little Giant, with posts and cutters for keyways 1" to 2 1/2".
 - Milling machine, No. 4 1/2 Garvin plain, table 9"x42", back geared, double friction countershaft, good condition.
 - Power hammer, No. 9 Beaudry, upright, 300 lb. ram, estimated blow 1800 lbs., weight 5500 lbs., used but little, fine condition.
 - Shaper, 26" Smith & Silk, triple geared, shifting belt, good condition.
 - Saw bench, patternmakers', universal, Oliver, revolving arbor for 2 saws, all attachments, good as new.
 - Slab miller, 42"x42"x10' Ingersoll, with auxiliary vertical spindle, adjustable rail, no side heads, good condition.
- What do you want? What have you for sale? We buy, sell or trade good, used machine tools.

SECOND-HAND MACHINERY

FOR SALE BY

Joseph Beal & Co., - **453-457 Atlantic Ave., Boston, Mass.**

Engine lathe, 24"x11' F. E. Reed, screw cutting, c. r., offset tailstock, 14" hollow spindle, p. c. f., face plate, steady rest, centers, gears, friction countershaft. Price \$1000.

Fox turret lathes, 22"x7' Windsor, b. g., f. h., turret mounted on carriage, power feed, hand cross feed, 1 1/2" hole in spindle, 11" diam. turret, six 1 1/2" turret holes, with oil pan, tpl. fric. c. s., (2). Price \$550 each. f.o.b. Boston

Grinder, internal, No. 4 Van Norman, complete with c. s. Price \$650.

Grinder, vertical, 8" Heald, magnetic chuck, hand operated, good condition, price \$400.

FOR SALE BY

Fred C. Dickow - **33-35 S. Desplaines St., Chicago, Ill.**

ENGINE LATHES.

13"x 5' Blaisdell lathe c. r. \$ 235. | 16"x 6' P. & W., taper attach., \$ 125.

14"x 6' Blaisdell lathe..... 165. | 16"x 7' Star, c. r., rebuilt..... 175.

GRINDERS.

12"x30 Brown & Sharpe universal grinder, A1 condition.

14" internal grinders for ball bearings, like new, (2).

Tool grinders of all kinds.

MISCELLANEOUS.

Drill presses, 20", new, each... \$ 70.

Drill pr., 30", b. g., p. f., sld'g hd. 125.

Gear hobber, No. 1 Farwell, with

4 H. S. Hobbs, A1 condition.

Horn punch press, power hack saws, grinders, square shear, joiner, etc.

Milling machine, No. 1 B. & S.

universal, complete.

Punch and shear, No. 10-L Rock

River, A1 condition \$225.

FOR SALE BY

Federal Machinery Sales Co., **8 N. Jefferson St., Chicago, Ill.**

BORING MACHINE.

Barnes No. 1 horizontal boring and drilling machine.

DRILLING MACHINES.

2-spindle Henry & Wright high speed ball-bearing, (2).

3-spindle Henry & Wright high speed ball-bearing.

4-spindle Kern high speed ball bearing.

20" Barnes drill, plain lever feed.

26" Barnes drill, sliding head, back gears, geared power feed.

KEYSEATER.

No. 1 Davis, with countershaft attached.

LATHES.

14"x 6' Bogart, hollow spindle, r. and f. rest, taper attachment.

15"x20"x6' Sebastian plain gap lathe, hollow spindle, plain rest.

16"x 8' Shepard, hollow spindle, compound rest.

18"x 8' Monarch, 3-step cone, double back gears, c. r., hollow spindle.

20"x10' American Challenge, q. c. g., hollow spindle, c. r., taper attachment.

24"x12' Schumacher & Boye, hollow spindle, compound rest, chuck.

26"x12' Monarch, quick change gear, hollow spindle, compound rest.

MILLING MACHINES.

No. 2 Hall & Brown plain miller.

No. 0 Bristol hand miller.

PLANERS.

18"x18"x40" Putnam, one rail head.

30"x30"x8' Whitcomb, one rail head.

MISCELLANEOUS.

Blower, No. 4 Garden City.

Bolt cutter, 1 1/2" Wells, opening die.

Cutting-off machine, 4' Hurlbut & Rogers, cone driven.

Engine turret lathe, heavy, 21" Grant & Bogart, geared head, hollow spindle.

Gas furnaces, American, (2).

Pipe machine, 3" Bignall & Keeler, power.

Power press, C-2 Ferracute inclinable.

SECOND-HAND MACHINERY

FOR SALE BY

The Fossdick Machine Tool Co., - - Cincinnati, O.

HAND FOUNDRY CRANES.

One each 5 and 7-ton roller bearing hand foundry crane, with cross travel carriage, 27'8½" span. Either can be shortened to suit. In good condition.

FOR SALE BY

Strong & Hery Co., - 210 State St., Rochester, N. Y.

In stock for immediate delivery.

LATHES.

- 20x10 New Haven, plain change, compound rest, new.
- 18" 8 Mueller, double back gear, quick change, new.
- 16x 8 Hamilton, quick change gear, new.
- 14x 6 Hamilton, quick change gear, new.
- 14x 6 Hamilton, quick change gear, taper attachment, new.
- 14x 6 Hamilton, quick change gear, taper attachment, pan bed, new.
- 14x 6 Hamilton, plain change gear, new.
- 13x 6 Worcester, plain change gear, new (2).
- 9 x12 Porter Cable, compound rest, new.
- 11x 5 Blount speed lathe, new.

SCREW MACHINES.

- 2" geared friction head, power feed to turret, new.
- 14" geared friction head, power feed to turret, new.
- 1" plain head, wire feed, new, (2).
- 9-16" plain head, wire feed, new, (2).

BENCH LATHES.

- No. 5½ Sloan & Chace, compound slide, 3-speed c. s., 10 collets, new, (2).

BENCH MILLER.

- No. 2 Sloan & Chace, tool room, index centers and vise, new.

PUNCH PRESSES.

- No. 5 Toledo, open back, new, (2).
- No. 2½ Toledo, open back, new, (2).
- No. 4 Baxendale, new.
- No. 3 Zeh & Hanneman inclinable.
- No. 68-N Bliss press.

MILLING MACHINES.

- No. 12 Garvin plain, new.
- No. 0 Rockford plain, new.
- Standard hand millers, vise and arbors, new, (3).
- No. 15 Garvin plain, new.
- No. 2 Cincinnati, plain.
- No. 2 P. & W., Lincoln type.

DRILL PRESSES.

- 20" Barnes sq. base, lever and worm feed, new, (2).
- 20" Barnes sq. base, b. c., s. f. and a. s., geared tapper, new.
- 3-sp. Avey ball bearing, new.
- Myers sensitive bench, new, (6).
- Barnes sens. bench. friction, new, (3).
- 20" Buffalo, b. g., new, (2).
- 36" Aurora, sliding hd., gd. tapper.
- 24" Aurora, sliding head.

TURRET LATHES.

- 21" Gisholt style "H", (2).
- 12" W. & S. plain.
- 2x24 Jones & Lamson geared head flat turret.

TOOL ROOM GRINDERS.

- Capital internal, new.
- No. 2 Hartford surface, new.
- Steno surface grinder, duplex, two magnetic chucks, new.

GRINDERS.

- 12x36 Landis plain, (2).
- 8" Blount grinders, new, (2).
- 10" Blount grinders, new, (2).
- 12" Blount grinder, new.
- No. 6-T Sterling, new, (2).

WALL RADIAL.

- Canedy-Otto 3½', new.

CHUCKING LATHE.

- 7x14 Potter & Johnston automatic.

MISCELLANEOUS.

- Centering machine, 4" Whiton.
- Hammer, helve, No. 2 Hawkeye.
- Shaper, 10" P. & W., trav. head.
- Shaper, 6" Boynton & Plummer.

COLD ROLLED STEEL.

We have an extremely large stock of new round, flat, square and hexagon in our Rochester warehouse. Write for quotations on immediate deliveries. We have been in the machine tool and supply business for 20 years, and believe that we can serve you to your advantage.

SECOND-HAND MACHINERY

WANTED BY

Morris Benjamin, - - - **212 Centre St., New York, N. Y.**

5 Drill presses, 20-22-24" Barnes.
2 Grinders, universal. Landis, Brown & Sharpe.
10 Lathes, 10-12-14" of good make.
2 Millers, universal, Cincinnati, Kempsmith or Oesterlein.
10 Presses, power, equal to Nos. 18-19-20-21 Bliss.
2 Radial drills, Bickford or Gang.
5 Screw machines, Nos. 1-2 Garvin or Warner & Swasey.
5 Shapers, 12-14-16", also 20-24" back geared.
Leather belting, motors, dynamos.

FOR SALE BY

McMullen Machinery Co., - - - **Grand Rapids, Michigan**

Automatics, 2" Cleveland. (2).
Compressor, 8x8 Bury horiz.
Compressor, 6x6 Curtis double.
Drill, 14" Washburn sensitive.
Drill, 23" Superior, power feed,
back geared, a. s., t. a.
Drill, 26" Barnes, sliding hd., power
feed, back geared, a. s.
Lathe, 18x10 Perkins h. s., c. r.
Lathe, 13x6 Barnes, h. s., c. r.
Lathe, 11x4 Pratt & W., speed.
Lathe, 11x4 Wells, speed.

Planer, 24x24x8 Whitcomb.
Planer, 24x24x8 Lodge & Davis.
Punch & shear, No. 3 L. & A. double,
6" throat.
Punch & shear, No. 4 L. & A. single,
6" throat.
Riveter, 4" Shuster.
Saw, Millers Falls, hack.
Saw, Q. & C., hack.
Screw mach., 24" Oliver, w. f., a. c. p. f.
Shaper, 14" Steptoe, plain.

FOR SALE BY

E. L. Easley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

BORING MILLS.

52" Baush, 2 heads, plain table.
60" Betts, 2 heads, plain table.
84" Niles, 2 heads, special fixed center head for fly-wheels.

51" Bullard, 2 heads, plain table.
30" Colburn, 1 head.
Moline hole-hog, 2 spindle.

DRILL PRESSES.

No. 4 Avey high speed ball bearing, drills on column, fine shape (6).
8 spindle Gardam multiple, 17" rectangular head.
2 spindle No. 35 H. & W. hi-spd. (2).

4 spindle Henry & W. high speed.
8 spindle Henry & W. high-speed.
26" Hoefer, sliding head.
3" American radial, speed box.

GRINDERS.

No. 2 Bath universal.
No. 7 Besly double end disc.

No. 1 Greenfield universal cutter and reamer grinder.

LATHES.

38"x19" Fish.
16"x 6" Lodge & Shipley, q. c. g.
11"x 8" Star.

24"x14" LeBlond heavy duty crank shaft lathe, pan, pump and piping, rod feed only, q. c. g.

MILLING MACHINES.

No. 25 Becker-Brainard.

No. 2 Kempsmith universal.

PRESSES.

No. 2 American Can, o. b. i., (2).
No. 2 Toledo, o. b. i., (5).

No. 37 Niagara, solid back, new.

SCREW MACHINES.

4" Cleveland automatics, (2).
No. 1 Foster, plain head.

14" Dreses, friction head.
No. 224 Garvin 17-16" cap., fric. hd.

MISCELLANEOUS.

Brake, 7' Ohl, up-and-down pattern.
Filer, No. 2 Cochrane-Bly.
Gear cutter, 48" Brainard.
Keyseater, No. 1 Knowles horiz.
Planer, 48"x48"x14" Pond, 1 head.

Sprocket turning and boring machine combined, Baker Bros.
Turret lathe, 28" Gisholt, style "I".
Turret lathe, 2"x24" J. & L.
Valve millers, for brass.

SECOND-HAND MACHINERY

FOR SALE BY

Clark Machinery Co.,

1302 Ontario Ave., Cleveland, O.

Blower, No. 1 Root, positive pressure.

Compressor, 10x12 Chicago.

Lathe, 48"x24" Enterprise. c. r.

Lathe, double head key lathe.

Magnetic separator, No. 1 Ding.

Miller, double end valve.

Miller, vertical, table 22"x54".

Riveter, 3" Shuster.

Screw machine, 24" Cleveland auto.

FOR SALE BY

New York Machinery Exchange,

50 Church St., New York City

Partial List of Rebuilt Machines available.

MILLING MACHINES.

No. 3 new model Becker-B. univ.

No. 3 Becker-Brainard universal.

No. 3 Brown & Sharpe plain.

No. 24 LeBlond full universal.

No. 2 Cincinnati universal.

No. 2 Cincinnati plain.

No. 1 Hendey-Norton universal.

No. 5 Kempsmith plain.

BORING MACHINERY.

Niles horizontal cylinder boring mill, 9" bar.

No. 1 Barrett horizontal boring mill, 34" bar.

Niles, horizontal boring and drilling machine, 24" bar.

No. 2 Rockford horizontal drilling and boring machine, 21-16" bar.

10" Betts vert. boring mill, 2 heads.

62" Baush vert. boring mill, 2 heads.

60" Niles vert. boring mill, 2 heads.

36" Bullard vert. boring mill, 2 hds.

RADIAL DRILLS.

6' Dreses universal, with motor.

54' Niles semi-universal.

5' Western full univ., with motor.

5' Niles semi-universal, (2).

5' Baush plain.

5' Box plain.

44' Bickford plain, tapping attach.

44' Niles plain.

4' Dreses plain.

4' Niles plain, with motor.

34' Niles plain.

34' Gang plain.

3' Prentice plain, (2).

GRINDING MACHINES.

12"x42" Landis universal.

10"x36" Thompson universal.

12"x36" Modern plain.

No. 14 Landis internal.

3' Pratt & Whitney vertical surface, rectangular magnetic chuck.

No. 1 Brown & Sharpe internal.

CUTTING-OFF MACHINES.

9" Bement-M. grd. hd., double end.

Hurlbut-R. 5", 4", 3", 14" capacity.

44' Davis, (10).

2' Pratt & Whitney.

PIPE MACHINES.

8" Bignall & Keeler pipe machines.

LATHES.

114"x22" Pond, quadruple geared, face plate drive.

72" Tire wheel lathe.

63" Lodge-S. double pulley lathe.

48"x24" Enterprise.

48"x18" Fifeild, raised to swing 60".

42"x20" Putnam.

38"x24" Fifeild.

36"x22" Pond, triple geared.

36"x20" New Haven.

32"x25" LeBlond, quick change gear.

30"x30" Perkins, triple geared.

30"x28" Fifeild.

30"x21" Fifeild.

28"x27" Fitchburg.

26"x26" Niles, raised to swing 38".

26"x24" New Haven.

24"x24" Fitchburg.

24"x20" Morse.

26"x16" American, q.c.g.sgl. pulley dr.

PRESSES.

No. 604 Bliss reducing presses, rack and pinion movement, 4" to 42" adjustable stroke, (6).

Farrell double crank geared press, 2" stroke; weight 9000 lbs.

No. 2 new Bliss straight sided double crank press, 2" stroke, wt. 5,000 lbs.

Howard knuckle joint press, 14" stroke.

Hoe & Co. 350-ton hydraulic press, pump and water tank.

BENDING ROLLS.

Ship plate bending rolls, 23'6" between housings; weight 170,000 lbs.

ELECTRIC TRAVELING CRANES.

10-ton Northern, 48'6" span, four d. c., 220 volt motors.

10-ton Industrial, 42' span, d. c., 220 volt motors.

10-ton Euclid, 54'24" span, 3 motors, 440 volt, 3 phase, 60 cycle.

2-ton Shaw, 45'7" span, three d. c., 500 volt motors.

SECOND-HAND MACHINERY

FOR SALE BY

Herman L. Winterer,

908-910 Beach St., Philadelphia, Pa.

LATHES.

28"x18' Schumacher & Boye.
21"x14' Blaisdell, b. g.
21"x10' Lodge & Davis, c. r.
21"x28' LeBlond dbl. combination.
20"x 8' Flather, c. r.
19"x10' Fitchburg, b. g., (2).
18"x12' New Haven, b. g.

18"x12' Walcott, double.
18"x10' Lodge & Shipley, q. c. g.
18"x 8' Blaisdell, b. g., c. r.
17"x 8' Prentice, c. r.
16"x 6' Flather, c. r.
And many others.

TURRET LATHES.

4"x28" Pond.
2"x18" American back geared chuck-
ing lathe.
7"x14" Potter & J., semi-automatic.

3"x28" Lodge & S., chucking lathe.
27" chucking lathe.
24"x8' Blaisdell ck'g. lathe with tur.

MISCELLANEOUS.

Boring mill, hor., 48" Beaman & S.
Cold saw, 20" Newton.
Centering machine, 4" Whiton.
Electric welder, 16" throat, Toledo.
Gear cutter, univ., 28" Gould & E.
Grinder, universal, No. 1 Cincinnati.
Keyseater, No. 1 Baker.
Keyseater, No. 2 Davis.

Keyseater, 18" Morton.
Keyseater 19"x8' Beaman & Smith.
Milling mches., univ., No. 1 B. & S.
Milling mche., plain, No. 1 B. & S.
Planers, 20 to 24" with 5 to 8' bed, (6).
Planer, 34"x34"x9' New Haven.
Planer, 33"x10' Whitcomb.
Saw sharpeners, (4).

Large assortment of Boilermakers' and General Machinery.

Send for complete list.

Milling Machines.

3 Lincoln Millers, No. 4
Hendey.
1 B.-B. No. 25
3 Lincoln Millers, No. 7 B. B.

1 Briggs Miller, Type B.,
large size.
4 Hand Millers.
2 Oscillating Millers.

Miscellaneous.

2 Drills, 20" Barnes.
Drill, 4-spindle, with power
feed.
1 Drop Hammer, 100 lbs.
1 Gas Furnace, American
No. 1, and blower.
3 Foundry blowers, Root,
small.
1 Gear Cutter, 30" G. & E.,
spur and bevel.
3 Lathes, 21"x12' Perkins.

1 Grinder, automatic, for cold
saws up to 25" diam.
3 Lathes, 26"x12' Hamilton.
Lathe, speed, with collets.
1 Planer, 30"x30"x12', good
as new.
Press, power, heavy, back
geared.
10 Screw machines, P. & W.
automatic.
1 Slotter, 10" New Haven.

T. Crowther & Company, Inc.

170 Oliver Street, Boston, Mass.

New and Used Machine Tools

Large stock of second-hand machine tools on hand for immediate shipment. New screw machines and hand milling machines for quick shipment.

What have you to sell?

Send us list of any tools you have for sale

The Biggs-Watterson Co.
Guardian Building, Cleveland, Ohio

Second-Hand Machinery List

Besides having a complete machinery equipment for sale, for manufacturing 18 lb. British Shrapnel Shells, we have available the following machines:—

AUTOMATICS.

2" Cleveland.
Reed-Prentice semi-auto. lathe.
Potter & Johnston 6-A.

BORING MILLS.

24" Bullard V. T. L. (new).
No. 2 Baker cylinder borer.

DRILL PRESSES.

Baker Brothers two spindle 1"x
6" semi-automatic.
4" Baush radial.

24" Cincinnati upright.

KEYSEATERS.

No. 0 Baker.
No. 2 Baker.

LATHES.

14"x6' Fay & Scott (new).
18"x8' Davis 3-step cone, d. b.g.
20"x10' Bridgeford quick chg.
22"x14' Davenport.
26"x12' Bridgeford 3-step cone,
double back geared.

Tindell-Morris crankshaft.

TURRET LATHES.

24" Gisholt, with 6 $\frac{1}{2}$ " & 5 $\frac{1}{2}$ " holes.
21" Gisholt, with 2 $\frac{1}{2}$ " holes.
11" Bardons & Oliver.
1" Foster-Kimball.
1" Garvin.
1" Warner & Swasey.

The above being only a partial list of our stock, would ask that you advise us your needs.

We assure you that all inquiries will have our best attention.

The Motch & Merryweather Mchy. Co.
711 Lakeside Ave., N. W., Cleveland, O.

DETROIT

PITTSBURGH

CINCINNATI

Used Grinders

One Springfield Cylindrical Grinder, capacity 12"x96".
One Landis Plain Grinder, 10"x30".
One Landis Universal Grinder, 10"x30".
One Brown & Sharpe Universal Grinder 10"x40".
One No. 2½ Bath Universal Grinder, 12"x36".

Used Planers

50"x14', one head, Powell Planer.
36"x10', two heads, Gleason Planer.
24"x12', one head, Pease Planer.

Used Lathes

One 18"x10' Geared Head Whitcomb Blaisdell.
One 18"x 8' Geared Head Whitcomb Blaisdell.
Both Lathes, single pulley drive, and in excellent condition.

We, also, carry full line of used Lathes, 14" to 42" swing

Send us your requirements

Factory & Mill Supply Co.

173 Oliver St., Boston, Mass.

Some Lathes

No. 79—22"x16' 5-Step Cone Head, L. & S. Lathe with 2 headstocks and 2 tailstocks on one bed.
No. 87—24"x12' (Single Pulleys) Engine L. & S. Lathe.
No. 881—2"x24" Jones & Lamson Turret Lathe.

OTHER MACHINES

No. 2000—18"x42" Greenwald-Brown auto. cut-off 150 h. p. st. engine.
No. 1337—Crompton-Knowles Loom Wks. Keyseater, 60" st., 48" sw.
Nos. 608-662—Safety Wet Tool Grinders, 2"x16" and 4"x30" wheels.
No. 680—Safety Tool Grinder, 4"x32" emery wheel.
No. 1379—Universal Swivel Table for radial drill.
No. 2083—6" Hersey Rotary Water Meter.
No. 1336—No. 00 Sturtevant Blower.
No. 2531—Sturtevant Blower, 2½" outlet.
No. 2033—Commercial Elect. d.c. 40 k.w. 110 v. Generator, comp. wound
1—15 h. p. Gas Engine, 215 r. p. m.
No. 1690—Rockford Straightening Machine with countershaft for work up to 8' long, 2½" in diameter.
No. 1446—No. 4 D. E. Whiton Centering Machine 6' bed.

USED MOTORS

No. 991—d. c., 10 h. p., 220-volts, 1150 r. p. m. Reliance Motor.
3 h. p. 220 volt, d. c., 1150 r. p. m. Reliance Motor.
1½ h. p. Bullock, 220 volt, d. c., 600 r. p. m.
3½ h. p. Western Electric, 110 or 220 volt, 400-1675 r. p. m.

DELIVERY NOW

**The Lodge & Shipley Mch. Tool Co., Cincinnati, Ohio,
U. S. A.**

GRINDERS.

No. 21 Landis Plain, 10"x30".
No. 28 Brown & Sharpe Plain, 18"x96".
No. 1½ Landis Internal.

SCREW MACHINES.

No. 55 15/8" Four Spindle National-Acme.
Three 2¼" Gridley Single Spindle.

RADIAL DRILLS.

5 Ft. Dreeses Plain.
6 Ft. Dreeses Plain.

MISCELLANEOUS.

2½" Lucas Horizontal Boring Mill.
No. 5-B Becker Vertical Milling Machine.
24" Fellows Gear Shaper.
8" New York Vertical Slotter.

Chandler & Farquhar Company
419-425 Atlantic Ave., Boston, Mass.

The Attention of New England Machine Tool Users

Is especially directed to the fact that we are carrying, right here in the heart of this important section, the largest as well as the most complete stock of high grade new machine tools, the products of the best manufacturers, comprising lathes, milling machines, grinders, drilling machines, etc., etc., as well as a varied stock of second-hand machine tools in fine operating condition. Our aim is to give you a personal service that will insure your getting just the machine that will best fit your requirements. Don't be afraid to ask for information; we are glad to give it.

Purinton & Smith, Hartford, Conn.

"New York's Greatest Clearing House"

Lathes.

62"x24" Triple-geared, New Haven.
56"x28" Triple-geared, Putnam.
36"x16" Back-geared, Putnam.
30"x14" Heavy, Bement-Miles.
28"x36" Fay & Scott, hollow-spindle.
28"x15" New Haven.
27"x14" Fitchburg.
26-48"x18" taper, McCabe double-spindle, heavy pattern.
26-48"x12" McCabe, dbl. spin., hvy.
24"x14" Fitchburg.
24"x10" Lodge & Davis.
24"x14" Hamilton, quick change.
18"x12" Schumacher & Boye.
18"x12" Porter arranged for motor.
18"x10" Draper, cpd. rest, hol. spin.
18"x 8" LeBlond, cpd. rest, hol. spin.
16"x 6" Reed, cpd. rest, hol. spin.

New Lathes.

4-16"x 6" Single back geared.
3-18"x 8" 3-Cone, double back geared, semi quick change.
3-18"x 8" 3-Cone, dbl. bk. grd., q. c.
3-18"x10" 3-Cone, dbl. bk. grd., q. c.
2-21"x 8" 3-Cone, double back geared, semi quick change.
3-24"x14" 3-Cone, double back geared, semi quick change.

Steel Tire Lathe.

42" Swing, dbl.-hd., cuts both wheels at same operation, Bement-Miles.

Turret Lathes.

21" Gisholt, gap style.
2-20" Potter & Johnston, full-auto, 2" hole.
2x24 Jones & Lamson, flat turret, arranged for motor-drive.
2x24 Jones & Lamson, c-shaft drive.

Horiz. Boring & Drilling Mche.

3-15-16" bar, knee type, with outside yoke support, Binsse style.

New McCabe Lathes.

"2 in 1" Double spindle, latest heavy pattern, 26-48" swing, triple geared, 12", 16", 18", 20" and 26" beds in stock.

Planers.

72"x72"x 8' Sellers, 3 heads.
48"x48"x12' Niles, 2 heads.
40"x40"x12' Putnam, 1 head.
36"x36"x12' Gray, frog & switch, 2hds.
36"x36"x11 1/2' Sellers, 1 head.
36"x36"x 8' Putnam, 1 head.
32"x32"x 8' Pond, 2 heads.
26"x26"x 9' Putnam, 1 head.
26"x26"x 6' Pratt & Whitney, 1 hd.
24"x24"x 7 1/2' Sellers, 1 head.
24"x24"x 8' Sellers, 1 head.

Rotary Planer.

No. 2 Cleveland, 50" cutter-head, 6 travel, bed-plate 3'x6'.

Plate Planer.

14' for edge planing, Sellers.

Radial Drills.

7' Arm, Niles, motor-driven.
7' Arm, Baush.
5' Arm, Dreses, speed box.
5' Arm, heavy, Pond.
5' Arm, Bement-Miles.
2 1/2' Arm, Bement-Miles.
2' Arm, Gang Co.

Upright Drills.

2-36" Foote-Burte, heavy duty.
36" Swing, Prentice Bros. slid.-hd.
32" Swing, Prentice Bros. slid.-hd.
24" Swing, Barnes,

Multiple-Spindle Drills.

18-spindle Baush, cap'y. 1", c-shaft.
16-spindle Baush, fitted for motor.

Upright Boring Mills.

16' Swing, heavy, 10' under rail, motor-drive, Niles Tool Works.
86" Swing, 2 hds. Niles Tool Works.
80" Swing, 2 hds. Pond Mch. T. Co.
65" Swing, 2 hds. motor-dr. Betts.
42" Swing, 2 hds. motor-dr. Bullard.
42" Swing, 2 hds. speed-box, Colburn.
36" Swing, turret-hd., Brown & S.

J. J. McCABE,

149 Broadway

Milling Machines, Planer Type.

37"x14' Bement-Miles, horiz. spindle.
36"x 8' Newton, vertical spindle.
24"x 6' Ingersoll, horizontal spindle.

Milling Machines, Lincoln Type.

Putnam, table 39x7" with tail & vise.
Pratt & Whitney (10) tables 27"x8".

Milling Machines, Vertical.

60" Bement, Miles, heavy.
42" Niles Tool Works, heavy.

Shapers.

28" Stroke, geared, Smith & Mills.
20" Stroke, crank, Gould & Eber.
12" Stroke, double traveling-head,
Wm. Sellers & Co.
12" Stroke, traveling-head, Sellers.

New Shapers.

1—32" Stroke, back-grd. speed-box.
1—20" Stroke, back-geared.
3—16" Stroke, plain.

Slotters.

9" Stroke, Bement.
10" Stroke, Newton.
10" Stroke, Sellers.
12" Stroke, Sellers.
12" Stroke, Bement.
12" Stroke, Betts Mch. Co.
18" Stroke, Bement-Miles.
30" Stroke, Baker, combination key-
seater and slotter.

Steam Hammers.

1—300-lb. Miles, single frame.
3—600-lb. Morgan, double frame.
1—700-lb. Bement-Miles, dbl. frame.
1—900-lb. Morgan, double frame.
1—1000-lb. Morgan, double frame.
1—1200-lb. Morgan, double frame.
1—2500-lb. Bement-Miles, single fr.
1—4500-lb. Miles, double frame.
1—5000-lb. Morgan-Williams, dbl.fr.

Drop and Helve Hammers.

1200-lb. Miner & Peck, drop.
900-lb. Williams & White, drop.
50-lb. Bradley, (2) helve.

Bending Rolls.

16' 2" between housings, heavy, Stand-
ard, modern style, Hilles & Jones,
engine driven, drop housing.

Punches and Shears.

60" gap, heavy, No. 6 Hilles & Jones.
60" gap, horizontal, cap'y. 1½ thru
1½" Bement-Miles, new.
50" gap, cap'y. 2" thru 1".
36" gap, Wm. Sellers & Co.
30" gap, rotary splitting shears,
Lenox.
14" gap, heavy, Standard.

Hydraulic Flanging Press.

450-tons Bement-Miles, to exert a
pressure of 1500 lbs., cap'y. 7"x8"
between posts.

Riveters.

10' Sellers, steam-driven.
5' 6" Sellers, steam-driven.

Miscellaneous.

2½" Bolt cutter, Acme.
2" Bolt cutter, Detrick & Harvey.
1½" Bolt cutter, Acme, double head.
1½" Bolt cutter, Putnam, single hd.
30" Stroke slotter and combination
key-seater, Baker Co.
150-ton hydraulic wheel press with
double pump.
Cold saw, capacity for cutting 5"
round, Lea-Simplex.
Double-end cutting-off & centering
machine, 9" cap'y., Niles.
36" Automatic gear cutter, spur and
bevel, Gould & Eberhardt.
36" Automatic gear cutter, spur
only, Eberhardt.
Water tool grinder, wheel 24x4.
Boring bar, 4½" diam. 8' 6" long.

ReMANUFACTURED

-(ORIGINATED BY US)-

MACHINE TOOLS

FOR QUICK SHIPMENT

At Chicago—The Great Machinery Center

LATHES.

- 1—20" x 6' Lodge & Shipley.
- 1—20" x 6' Reed.
- 1—20" x 8' American.
- 1—20" x 10' American.
- 1—20" x 10' Reed.
- 1—20" x 12' Draper.
- 1—21" x 12' Bradford.
- 1—21" x 14' Flather.
- 1—22" x 8' Flather.
- 1—21" x 18' LeBlond.
- 1—22" x 10' Schumacher & Boye.
- 1—22" x 10' Whitcomb-Blaisdell.
- 1—22" x 16' Flather.
- 1—23" x 12' Greaves & Klusman.
- 1—24" x 10' American.
- 1—24" x 10' Draper.
- 1—24" x 10' New Haven.
- 1—24" x 12' Draper.
- 1—24" x 12' New Haven.
- 1—24" x 14' Blaisdell.
- 1—25" x 10' Greaves & Klusman.
- 1—25" x 14' Bradford.
- 1—25" x 20' American.
- 1—26" x 12' American.
- 1—30" x 14' Fay & Scott.
- 1—37" x 17' Fitchburg.
- 1—60" x 16' Fitchburg.

GEAR CUTTERS.

- 7—No. 13 B. & S., spur and bevel.
- 2—24" Fellows Gear Shaper.
- 1—No. 3-26" B. & S., spur.
- 1—No. 5 B. & S., spur and spiral.
- 1—60" B. & S., spur.
- 1—34" Whiton, Spur and Bevel.
- 1—No. 1 Schuchardt & S. Hobber.
- 1—18" G. & E. Hobber.

MILLING MACHINES.

- 1—No. 1-B Milwaukee, Plain.
- 1—No. 1 Kempsmith, universal.

MILLING MCHES.—Continued.

- 2—No. 2 Kempsmith, Plain.
- 1—No. 2 Cincinnati, Plain.
- 1—No. 3-A Brown & Sharpe, univ.
- 1—No. 3 Becker-Brainard, Plain.
- 1—No. 3 Kempsmith, Plain.
- 1—No. 5 Becker-Brainard, vertical.
- 1—No. 2 LeBlond, Plain.
- 1—No. 2 Cincinnati, Universal.
- 1—No. 20 Oesterlein, Plain.
- 1—No. 5 S. & S., Plain.

VERTICAL BORING MILLS.

- 1—30" Bullard.
- 1—34" Bullard.
- 1—34" Colburn.
- 1—41" Haush.
- 1—42" Gisholt.
- 1—44" Tush.
- 1—44" King.

PLANERS.

- 1—22" x 22" x 6' American.
- 1—24" x 24" x 6' Pond.
- 2—24" x 24" x 6' American.
- 1—24" x 24" x 6' Gray.
- 2—27" x 27" x 6' Ohio.
- 1—30" x 30" x 10' Woodward & Powell.
- 1—36" x 33" x 8' Smith-Silk.
- 1—36" x 30" x 8' Woodward & Powell.
- 1—36" x 36" x 10' Gray.
- 1—36" x 36" x 10' Pond.
- 1—42" x 42" x 14' Woodward & Powell.
- 1—67" x 48" x 18' Woodward & Powell.
- 1—67" x 48" x 16' Woodward & Powell.
- 2—76" x 48" x 18' Woodward & Powell.

HORIZ. BORING MILLS.

- 1—No. 1 Niles.
- 1—No. 9 Beaman & Smith, Floor.
- 1—Beaman & Smith, Cylinder.
- 1—4" bar, Niles, Bement, Pond.
- 1—4" bar Newark.

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125 N. CANAL ST., CHICAGO, ILL.

Second Hand Machinery

Bolt Cutters.

1" National, double head, with dies.

1½" Economic, with Landis all steel die head and dies, NEW.

Boring Machines.

Barrett type horizontal, boring and drilling machine, with raising blocks to swing 76", 6" boring bar, two heads, good condition.

36" Niles car wheel borer.

78" Niles vertical, two heads, friction feed.

Drilling Machines.

4' Cincinnati-Bickford plain radial, gear box drive, geared feeds.

Fox twelve-spindle multiple, capacity 1", head 20"x30", same as new.

Gear Cutters.

18"x4' Brainerd spur gear cutter.

Grinding Machines.

12"x42" Landis plain, geared feed.

12"x72" Norton plain, thoroughly overhauled, fine condition.

No. 300 Safety Emery Wheel Co. plow jointer.

Engine Lathes and Pulley Lathes.

13"x8' Willard gap lathe, regular equipment, two chucks fitted.

18"x8' New Haven, plain rest.

18"x10' Lodge & Shipley, three step cone, taper, A-1 condition.

20"x8' Blaisdell, fitted with 12" four hole turret, t. & l. countershaft.

20"x8' Blaisdell, plain rest.

24"x6' Back geared pulleys lathe, double plain rest.

24"x9' Engine lathe, three step cone, back gears, boring attachment.

26"x13' Pond, compound rest, 24" chuck fitted, good condition.

30"x10' Worcester, four step cone, plain rest.

36"x8' Putnam pulley turning lathe, five step cone, double plain rest.

Milling Machines.

No. 3 Chicago hand miller.

Screw Machines and Turret Lathes.

No. 2 Foster back geared hand screw machine.

No. 2 Warner & Swasey plain head screw machine.

Gridley semi-automatic piston machine.

3"x36" Jones & Lamson sliding hd. flat turret lathe, with chuck equipment.

Shapers.

Fitchburg 10", traveling head.

16" Smith & Mills, plain crank.

16" Baker Brothers, draw stroke, NEW.

Miscellaneous.

No. 12 Lennox hand punch, 12" throat.

Lindahl iron table saw bench with saw.

Marshall & Huschart Machinery Co.

17 S. Jefferson St.

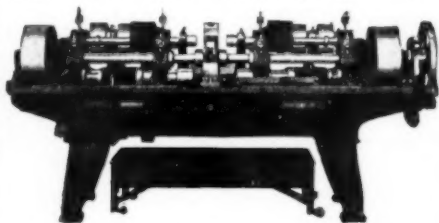
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